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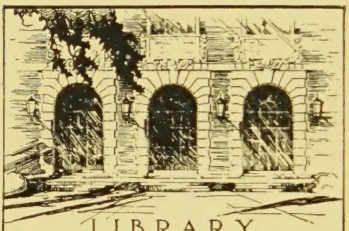

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PUBLIC UTILITY REGULATION

Edited by

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To the late
JOHN M. ESHLEMAN
of California
RAILROAD COMMISSIONER
In Appreciation of the Talent, the Character
and the Public Devotion He Brought to Bear On
THE PROBLEM OF REGULATION
This Volume Is Dedicated

569625

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PREFACE

Public utility regulation by the states has yet to receive the attention in college courses and public discussion merited by the importance of the subject. Much has been said by spoken and written word concerning railroad regulation by the federal government, but there is a lack of up-to-date and well-rounded material on the state control of electric railways, electric light and power companies, gas companies, water companies, and telephone companies, which are not far behind the railroads in the extent of the investment they represent and which furnish services as essential to the citizenship of the country as railroad transportation.

Furthermore, the question of state regulation of utilities is as vexed a problem as that confronting the federal government in connection with the railroads, and it has been rendered even more acute by conditions resulting from the war. For one thing, agitations have been started to curtail the powers of state commissions and to extend the authorities of towns and cities over local utilities. This and similar developments of recent years especially call for a renewed study of the situation, with a view to finding some definite and satisfactory solution of the problems involved.

The urge for regulation came originally from the ratepayers. The establishment of regulatory controls was in the early days generally resisted by the private utility companies. In later years this situation has changed and the utility corporations are among the strongest supporters of the public service commissions through which regulating policies have been largely developed. The reasons for this change in attitude are discussed in these pages.

Nothing is gained through disguising such facts as that regulation is in its infancy and that as to theories of valuation, limits of administrative control, standardization of rates, and other features of service, public and private views are not only different, but each is in constant flux. In this volume, which covers broadly the whole field of regulation, the public point of view is set forth, together with criticisms from the utilities point of view. The authors of chapters and others who have co-operated in making the studies resulting in this text are for the most part men who are either now in the public service or who, having held such employment in the past, have had special opportunities to know the public as contrasted with the private mind in these matters. On the other hand, with respect to important matters of dispute care has been taken to set forth accurately, by direct quotation or otherwise, the views of recognized experts of the utility companies.

It is believed that the material here for the first time published will be of value to all interested in the subject whether as public officials, public utility officials or investors, or representatives of the public at large. For the purposes of a college text in political science and government the volume has special value in that it does not confine itself to a discussion of court and commission rulings, but treats regulation rather as a living, growing and changing policy of government. Regulation is painted in the light not only of what now is best, but with a view to what may and probably will be best.

For the disinterested work of the authors and others, whose willing co-operation has made this volume possible, the editor is deeply grateful.

MORRIS LLEWELLYN COOKE.

Philadelphia,
September 10, 1924.

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PUBLIC UTILITY REGULATION

CHAPTER I

INTRODUCTION

By FELIX FRANKFURTER

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Permanent Character of Public Utility Regulation.—That highly complicated mechanism of social control known as regulation of public utilities dates, in its significant present-day aspects, from 1907. Ample time has, therefore, elapsed for regulation as an agency of government to render an accounting.

The investment of private capital in public utility properties in the United States operating under the regulatory system now totals about 35 billion dollars. This statement can be qualified in various ways for any given purpose. But under any such qualification the total will remain so stupendous as to dispel any thought of changing rapidly from the present regulatory system either to the one which obtained prior to its establishment or to public ownership. There is, as a matter of fact, no demand from any responsible quarter that we return to the political and otherwise chaotic management of utilities as practiced a generation or more ago. Quite the contrary. To prevent a recurrence of chaos and corruption, men like Elihu Root propose to write the method of regulation into state constitutions. There is, however, a decided agitation for public ownership. But even if public ownership will eventually

become general, its advocates should, in the meantime, join hands with all other elements in the community to improve regulation so that our utilities will be efficiently operated and effectively controlled, until the public is convinced of the wisdom of taking them over. No one can at the present time be without interest in making the theory of regulation work as satisfactorily as may be possible.

Origin of Survey.—This book is based on the assumption that no matter what else happens, there will be a field for regulation for a good many years. So far as it has been possible to do so all discussion of alternate plans has been excluded from these pages. In doing so no opinion is expressed on the value of regulation as contrasted with public ownership or any other method of operating these public services; the simple point of view is the fact of the system of regulation. One of the arguments usually brought against regulation is that it removes incentive. The story runs that if early builders of our utilities had been deprived of the opportunity for large—even excessive—profits, as happens under regulation, these same utilities would never have been built. This might be conceded, and yet it does not afford a good argument against regulation. In the early days our utility promoters probably needed these special incentives. But, especially in the Eastern part of the country and to a considerable extent even in the West, we have settled down to a measure of stability in which excessive profits are no longer needed as an incentive for that development which any given locality needs. The gamble in construction has been largely eliminated and the assured income on the prudent investment which goes with regulation provides the equivalent of the earlier opportunity for excessive profits.

The origin of this study in a way determined its aims and methods. Mr. Gifford Pinchot, after his nomination for Governor of Pennsylvania in 1922, with a view to equipping

himself for an understanding of the major problems that were likely to come before him in case of election as Governor, invited a series of studies to be made into the actual administration of the more important activities of his Commonwealth. The study of which this book is the outgrowth, is thus one of a series, including administrative reorganization, taxation, highways, education, prisons, through which Governor Pinchot endeavored to secure a disinterested view of his tasks as Governor before taking office. The inquiry[1] was frankly planned as a social audit of one of the most permeating agencies of what is, probably, our greatest industrial state. "If we could first know where we are and whither we are tending, we could better judge what to do and how to do it." Through the present survey both the general reader and the student of regulation are given a unique and dependable picture of regulation in action.

Intensive Study for Each State Necessary.—This study gains significance because of its limitations. The growing field of administration and administrative law will not be consciously developed, and therefore will not make for serviceable public control, until scientific studies of administrative regulation in action are made for each state. A system of regulation must be judged not by striking instances but by its daily, humdrum operations. So far as is possible, a quantitative basis of judgment is essential. That means, at the present stage of our knowledge and in view of the great diversity in conditions, traditions and development among the various states, strict confinement of a study to manageable limits of inquiry. Intensive studies must be made for each state before it will know its own business. We must have many such before many generalizations about regulation can be hazarded.

[1] The full report, together with the accompanying exhibits, appendices, and comments thereon from various quarters, has been placed on file in the Pennsylvania State Library at Harrisburg, where it is available to those interested.

Moreover, quantitative determinations can, at best, be only partly hoped for in any such study. Governmental regulation of business is a story of men, machinery and environment. The subtlest elements of "public opinion," its sources and reflexes, dominate the "environment" in which men and machinery "regulate." In a domain which touches conflicting and partly irreconcilable aims and claims of different elements in the community, such as we must candidly recognize the regulation of public utilities to be, we are confronted with confused and competing social standards and ideals the respective worth of which cannot be statistically established. But here, too, we must work with that objective habit of mind which we call the "scientific spirit."

Broad Considerations Underlying Survey.—The present study, then, is offered as one item to a total for which each state, it is hoped, will steadily make its contribution. The broad considerations which guided the plan and the execution of the survey have, it is believed, general application.

1. Impersonal Aims.—The objective was to analyze and interpret the results of a public policy after a decade's trial, and not to pass judgment on individual officers. Administration, to be sure, depends tremendously upon the quality of the administrators. But in this study, the "personal equations" were related to the impersonal factors of which they are a part. In other words, a study of the actual workings of regulation may reveal what types of administrators should be sought for, to what extent able men may be needlessly wasted by an inefficient system, or by friction between the administrative and the judiciary; it may show that burdens are cast by law of such a vast nature that not even able and courageous men can discharge them. That "good men can work any kind of a law" is one of those homely untruths

which are too costly for us to follow any longer as philosophic guides.

2. Scientific and Professional Direction.—The present volume is not a critique of "pure reason." No worker in this field can possibly be free from some direction to his thinking. The present contributors were selected, however, in addition to their professional qualifications, solely from the point of view of one "interest," namely, the generalized public interest. Subject to this qualification, if such it be, the aim of this study was strictly scientific in that the effort was exclusively concerned with accurate investigation and relevant interpretation. This study was, therefore, freed from the partialities or restraints that may, consciously or unconsciously, handicap official or partisan inquiry.

3. Checks Against Inaccuracy.—There ought to be no question as to the accuracy or adequacy of the "facts" set forth in such a survey. The material for opinion ought to be indisputable. What has been called here the point of view of the generalized public interest also involves a slant of mind—some bias. There are the inevitable probabilities of error. To guard against these, and to reduce the area of contention, all the studies in this volume were submitted to recognized experts of the utilities for comment and criticism. Many of the resulting comments were accepted as valid, and incorporated in the final report, or, where agreement could not be reached and the opposing point of view was specially significant, the effort has been made to include it in the text, by many footnotes or otherwise. There is thus furnished an authentic analysis of the *facts,* leaving for discussion the inferences that flow from the facts, and the attitude and action which they call for.

Regulation in Experimental Stage.—The results of this investigation had best speak for themselves in the succeeding

pages. Apart, however, from the specific conclusions reported by the various sectional studies of regulation, a few underlying considerations bearing upon the policy of regulation obtrude from the survey as a whole. Modern utility regulation has had a very brief history; we are in the trial period of this aspect of social control. Its substance and form are still crudely empirical; inevitably, we are as yet without such traditions as the science and practice of law administered by courts have evolved in the course of centuries. We must be reconciled to, and encourage, experimentation by the various states in the scope and method of regulation. Thus only can we steadily supplant prophecy with proof. For of one thing there can be no doubt: we are at the beginning, and not at the end, of utility regulation.

It is inconceivable that the exercise of those indispensable facilities of modern society which we call public utilities should be left to the unrestrained will of those who own them. The direction and enjoyment of the services furnished by these facilities involve the satisfaction or frustration of many conflicting interests—the interests of the owners, of the salaried managers, of labor, of the various groupings of consumers, divided among themselves by differences in geography, in industry and in size, and, finally, the interests of government. These contesting claims have to be adjusted; the adjusting mechanism and technique is regulation. This will hold true wherever, and so long as, we have a system of "private ownership" of utilities. It is true, no less, for any form of "public ownership." The latter, like the former, contains within itself sharp conflicts of interests which can be composed only by brute power or by some form of law.

This book reveals impressively the vast range of tasks which regulation involves and their appalling complexity. An adequate realization of the nature and extent of these burdens would greatly influence the formulation of law and the selec-

tion of the men chosen to administer it. Its full realization would also make us more alert to devise appropriate instruments for periodic stock-taking of how regulation works, and to fashion methods for educating the public to an understanding of the problems implicit in regulation.

Undue Emphasis on Question of Valuation.—Unfortunately, the whole subject has been bedeviled by controversies over "valuation." The minds of the utilities, of public service commissions and of the public, have been unduly absorbed and diverted by the metaphysics, the misrepresentations and the uncertainties of "valuation" litigation. Undoubtedly, in the past "valuation" has involved one of the sharp clashes of interests between those who concentrate on present profits and those who concentrate upon present cheap service. But to make of "valuation" a continuous football of litigation, rather than to devise security by a permanent measure of "prudent investment," has worked havoc to the utilities as well as to the public. Most disastrously of all, it has prevented concentration of thought and energies upon efficiency and improvements in service, the results of which in dollars and cents, let alone in social satisfaction, might be far more productive than the optimistic amounts "saved" by either side in valuation cases.[2]

A recent series of decisions of the Supreme Court of the United States gives good reason for hope that the next decade will bring that stability in the fixation of the "capital," upon

[2] While the manufacturer of textiles—or of steel—has to know in a general way the value of his plant for insurance and other purposes and less directly in order to fix prices, it is not a matter of day-to-day or month-to-month concern. One might be in the average industrial plant for six months at a time and never hear the question of valuation mentioned. It is not too much to say that one cannot be with a utility man for a couple of hours without the question being raised in one or more of its aspects. There is one good reason for this over-emphasis of the valuation item among utilities, i. e., that the turnover with utilities is not as rapid as it is with the average industrial plant. This undue emphasis on valuation has resulted in diverting the best thought of the industry from operation to safeguarding the investment. With the steam railroads this has already gone very far. It is not too much to say that the community could well afford to grant almost the extreme valuation claimed if in return it could secure from the operators of these properties effective management. The savings in a relatively few years would more than offset any possible concession in the matter of capitalization.

which a "reasonable return" is allowed, which alone will insure the necessary private investment, at the same time that it limits profits to a reasonable amount. The Galveston Electric (258 U. S. 388), the Southwestern Bell (262 U. S. 276), the Georgia Power (262 U. S. 625) and the Bluefield Water Works (262 U. S. 679) cases will, in their practical influence, gradually dispel the fog in which "valuation" has been enveloped. In his opinion in the Southwestern Bell Telephone case Mr. Justice Brandeis, speaking for himself and Mr. Justice Holmes, has made an exposition of the economics of valuation which is bound to find acceptance as a matter of practice. Once this great controversy is stilled, questions of economy and efficiency, in their social as well as their financial implications, will press to the fore. With valuation no longer filling the landscape, other undramatic but crucial problems of administration will be seen in their true significance. This book makes abundantly clear how vital to all concerned are such complicated issues as the apportionment of control between municipalities and the state, between the states and the federal government, between commissions and the courts.

All these are questions of technical complexity, of fine measurements, of elusive social standards, of patient experimentation, of wise prophecy. These may not be as dramatic as headline stories about "billions of dollars of watered stock." But upon a scientific grasp of these problems and a scientific temper of mind in approaching their solution, the success of regulation, and all that hangs thereby, finally rests. Here, as everywhere, we are finally dependent upon the persistent, unostentatious, detailed effort of a sufficient number of people in the community who deeply care.

CHAPTER II

THE FIELD OF REGULATION

By Ernest S. Bradford, Ph. D.

Consulting Statistician, New York

Three Classes of Commodity and Service Production.—Of the goods and services which are produced for the ultimate consumer some are supplied directly by government, some by private business under regulation involving varying degrees of public control, and some by private business operating under competition. All three of these forms of operation are carried on at the same time, each one without prejudice to the other, and each representing in its field possibly the best plan that has yet been adopted for producing and distributing its particular products.

Those services which are supplied directly by government—for they are services more frequently than commodities—include the construction and maintenance of streets and roads, provision for fire and police protection, for schools, parks and playgrounds, and for health and sanitation, including the disposal of garbage and sewage, and in most cities the water supply. These are local functions. The states furnish a considerable variety of other services—protective, educational or inspectional in their character; while the federal government undertakes to perform certain broader functions—the control of foreign relations, shipping, national forests, river and harbor improvements, postal facilities and a wide range of informational work. The class of services which governments supply is the result of a process of evolution extending over many decades. The services vary in quality; they are paid for through taxes, direct or indirect, except that in some cases,

such as the postal service and municipal water works, there is a direct charge for the service rendered. The wealth represented by the properties required to carry on these activities of local, state and federal government and publicly owned or operated is estimated to amount roughly in the aggregate to between 15 and 20 billion dollars.

Public Utilities.—The second group consists of those services and goods which are supplied by the "utilities," the sale of which is regulated more or less closely by public authority. These include current for electric lighting and power, gas, messages transmitted by telephone and telegraph, transportation by steam and electric railways and by water, and some private water supplies. The strict regulation of these is due partly to their close connection with the protection of life, health and property, and partly to the monopolistic character of the businesses themselves. Transportation of one kind or another is involved in all of them, either in the distribution of the commodity produced, as in the case of gas, water and electric current, or is itself a transportation service supplied for other goods, as in electric and steam railways. The total wealth represented in this group has been placed for the purpose of this discussion at something less than 35 billion dollars.

Competitive Business.—The third group of goods and services comprises the bulk of the business of the country. Most of the manufacturing, mining, wholesaling and retailing of merchandise, farming, banking, insurance, real estate and miscellaneous business, as well as the activities involved in the supplying of professional services, are carried on under private auspices, subject to some degree of governmental oversight, it is true, but slight when compared with that exercised in the preceding group. In respect to the activities which relate to production and distribution, the public control attempted has

been directed mainly toward the end of maintaining certain standards of quality in the goods made and sold, and toward preserving competition, which is relied upon as the principal force to regulate practices and prices. A somewhat stricter control is exercised in the case of financial and insurance concerns, but even so, it is not comparable with the regulation enforced in connection with public utilities. The bulk of the wealth that is used for directly productive purposes is found in this class.

One-Fifth of Productive National Wealth Under Regulation.—The field of regulation, therefore, is fairly distinct from public business on the one hand, and private business with some public oversight on the other, and covers a substantial proportion of the wealth of the country. Assuming that the national wealth is between 275 and 290 billion dollars, at present values, and that 175 to 190 billions are directly used for productive purposes (including transportation and merchandising), we find that approximately one-fifth of this latter figure is represented by the utilities. The latest government figures, which indicate roughly but not exactly the approximate "investment" in each group, and the volume of business done, are as follows, for the years specified:

UTILITY*	CAPITAL (billions)	ANNUAL VOLUME OF BUSINESS (billions)
Steam railroads (1921)	$19	$5½
Electric lighting and power companies (private), and electric railways (1922)	8½	2
Telephone and telegraph companies (1922)	2½	¾
Gas companies (mf'd gas) (1919)	1½	⅓
Shipping, canals and irrigation enterprises (only private included)	1	⅓
Oil pipe lines, private water companies, and miscellaneous	1	⅓
Natural gas	½	¼
	$34	$9½

* Figures of "Capital" are as of 1917. Census figures are not yet available for 1922.

While the aggregate amount which the public pays to the utilities each year appears to be well over 9 billion dollars, estimates as to the amount of capital invested or "value" vary widely. As to steam railroad capitalization the decision of July, 1920, says:

> We find that the value of the steam railway property of the carriers subject to the [transportation] Act, held for and used in the service of transportation is, for the purpose of this particular case, to be taken at as approximately the following:
>
> | | |
> |---|---|
> | Eastern Group as defined by the Carriers.. | $ 8,800,000,000 |
> | Southern " " " " " " .. | 2,000,000,000 |
> | Western " " " " " " including both the Western & Mountain Pacific Group herein designated..... | 8,100,000,000 |
> | | $18,900,000,000 |

The aggregate book cost of roads and equipment as reported by the carriers December 31, 1921, was $21,455,000,000.

The figure of 19 billions is regarded by some as altogether too high. Prof. Willford I. King, statistician of the National Bureau of Economic Research, for example, places the total wealth of the steam railways at about 13 billions, and all other utilities at about 14 billions, a total of 27 billions. These figures represent the economic or market value of the securities involved, rather than the earning value of the properties.

The United States census places the capitalization of the electric railways in 1917 at $5,532,000,000; and the value of plant and equipment of central light and power stations at $3,060,000,000. While the figures for 1917 are believed to be too high for 1922 in the case of electric railways, and too low in the case of central light and power stations, there is reason to regard the sum of the two as substantially correct for 1922. It is probably true that as regards the electrical industry, which is especially active at this time, census figures lag behind rather than exaggerate the actual.

Employees and Wages.—Measured in another way, i. e., by the number of wage earners employed, and the volume of wages and salaries paid, the field occupied by regulation appears also to be important. The following table shows in each utility group the number of employees, and the wages and salaries paid annually:

NUMBER OF EMPLOYEES IN THE VARIOUS UTILITIES AND THE VOLUME OF THEIR WAGES AND SALARIES*

UTILITY	EMPLOYEES	WAGES AND SALARIES (millions)
Steam railroads (1921)	1,660,000	$2,765
Electric light and power companies and electric railways (1922)	450,000	600
Telephone and telegraph companies (1922)	380,000	429
Manufactured gas companies (1919)	63,000	78
Water transportation (1919)	150,000	100
Pipe line companies, private water companies and misc. utilities	20,000	20
Total	2,723,000	$3,992

* Estimated on the basis of Central Station wages, 1922.

Here are represented 2¾ million employees, a large and substantial group of our citizens, earning nearly 4 billion dollars annually. The factors of social welfare involved in businesses representing so many employees and so large a wage expenditure are necessarily of considerable magnitude. The more stable and constant the operation of the industries which employ so many workers, the better are the economic conditions of the workers employed, and the more continuous the circulation of money in the community from wage earners to merchants, to factories, to factory workers, to all business and professional men, and all the way around again.

Related Manufacturing Lines.—These utilities represent not only an investment of billions on their own account and other billions of expenditure for labor and materials, but re-

quire for their maintenance, expansion and continued operation the activities of thousands of factories which produce the goods which the utilities consume. For use in connection with the consumption of electric current, a billion dollars' worth of electrical apparatus, machinery, and supplies must be fabricated every year—motors, dynamos, switches, wire, lamps, insulators, batteries, spark plugs, starting and lighting systems, washing machines, vacuum cleaners, electric irons, ranges and a thousand other items. Almost 2 billion dollars' worth of steam and electric railway cars, locomotives, and repair work must be turned out every year, not to speak of rails, spikes, timbers, structural steel, poles, wire, and other materials for the construction and repair of bridges, depots, freight houses, culverts, signal towers, and tunnels. For use by customers or companies in connection with the manufacture and sale of gas there must be prepared gas stoves, ranges, heaters, piping, gas tanks, meters, cutoffs, retorts, scrubbers, and hundreds of minor products.

For water works there must be produced engines and pumps, large and small belting, pipe, gates and valves, water meters, overhead cranes, and other hydraulic equipment, accessories and supplies. And so for telephones and telegraphs, steam heating, water transportation, and miscellaneous minor utilities. The volume of manufactured products used by the utilities is estimated to amount to between 3 and 3½ billion dollars, and to require the employment of about 900,000 wage earners, as shown in the table on the next page.

National and State Regulation.—While the foregoing figures are for the country as a whole, it should be remembered that the regulation provided is national in its scope only in respect to those activities of utilities which are of an interstate character, particularly those of trunk steam railroads, long distance telephone service, and oil or gas pipe-lines crossing state

Some Manufacturing Lines Related to Utilities

INDUSTRY	CAPITAL (millions)	VALUE OF PRODUCT (millions)	NO. OF WAGE EARNERS (thousands)	WAGES (millions)
Electrical machinery apparatus and supplies	$ 858	$ 998	271	$ 336
Steam and electric railway cars, and railway repair shops	1,129	1,911	570	893
Locomotives	138	156	27	43
Gas machines and gas and water meters	25	26	6	6
Miscellaneous	100	100	25	25
Total	$2,250	$3,191	899	$1,303

lines. Most gas, electric lighting, street railways and private water plants are subject primarily to state, and in many instances to local regulation. As the company units for financial or operating purposes tend to become larger and cover a greater number of properties, it seems likely that there will probably be a tendency toward larger units for regulation purposes.

Importance of the More Populous States.—In the larger states where the large centers of population are located, the utilities serve great numbers of people. It is in the cities that gas, electric lighting and power, water works, telephones and electric railways, find their greatest usefulness and get their largest revenues. A single great state like Pennsylvania, or New York or California, contains a substantial proportion of the utility business and investment of the country. Seven of these large states represent over half of the total for the country in each of the three lines shown on page 16.

A single state commission, such as that of Pennsylvania, for example, has the regulation of business wealth aggregating close to 4 billion dollars. The regulation of business interests of this magnitude requires an adequate organization for get-

VALUE OF CERTAIN UTILITIES IN SEVEN LARGEST STATES HAVING STATE REGULATION

	ELECTRIC CENTRAL STATIONS (PRIVATE) 1922	ELECTRIC RAILWAYS 1922	MANUFACTURED GAS 1919
	(millions)	(millions)	(millions)
New York	$603	$1,206	$448
Pennsylvania	390	458	92
Massachusetts	188	212	77
Ohio	209	300	6
Illinois	255	461	173
Michigan	197	130	60
California	477	323	62
Total for 7 states	$2,319	$3,090	$918

ting and analyzing the facts, and the application to these facts of correct principles of rate-making, service, and valuation.

Economic Characteristics of the Utility Services.—There are certain characteristics peculiar to the commodities or services supplied by the utilities, which are distinct from those vended in ordinary commerce. In the first place, the product sold is either a service or a commodity-and-service combined. In the case of steam and electric railways, telephone and telegraph, it is a service, primarily that of transportation, either of goods and persons, or of messages, spoken or written. In water, gas and electric current, the delivery of the commodity produced is an integral part of its production, and is of a sort which makes a single unified system of distribution by far the most economical. In this respect it differs from meat and bread, soap, clothing or machinery.

Further, the product is consumed locally, in close connection with its distribution. This is true also of irrigation works, for example, which constitute a sort of water works; while canals partake of the nature of railways, and bridges, wharves and docks are parts of the transportation system or terminals.

In the third place, the product is highly standardized. There is less difference between one kilowatt of electric current and another, between a cubic foot of gas consumed in one part of the city and that in another, than between one brand of breakfast food and another, one make of soap and another, one trade-marked fabric or piano and another. And so with rail transportation, while it may be a trifle more rapid by one line than by another, those differences tend to become standard, and vice versa, and the entire industry becomes unified and simplified—one in which processes and products are fixed and known. Again, there is little storage possible; there is no holding back for higher prices; the product is consumed almost as fast as produced.

Moreover, it is a cash business, or virtually cash, which the utilities carry on. If bills are not paid promptly, service is shut off. The continuing necessity for the product or service operates to divide the annual sales into monthly units, each of which must be paid for promptly.

While there are certain differences between those utilities which handle both commodities and their distribution (by wire or pipe lines), and those which supply transportation exclusively, these common characteristics distinguish them from the ordinary, competitive products of industry.

Services Which Concern Us Intimately.—When it is recalled that between 12 and 13 million consumers are served by central light and power stations, supplying more than 9 million stationary motors and 2 million street lamps with current; that some 13 million telephones are in use, between which 30 million messages are exchanged daily; that 12½ billion revenue-paying passengers were transported by electric railways in 1922; and that between 8 and 10 million persons are consumers of manufactured gas; the fundamental part which

the utilities play in our economic and business structure begins to be realized.

Consider their close relation to us. The transmission by wire of electric current for lighting and power; of messages spoken or written, locally or over a long distance; the transportation by pipe-line system of gas or of steam for heating; the transportation by rail or by trolley or by water of persons and goods of every description; these are fundamental factors in our every-day lives. The cheerful glow of the evening lamp, the flame under the pot at meal time, the neighbor's voice over the wire, the yellow half-sheet with its emergency message, the switches that start motors humming and lights burning in a hundred thousand factories and half a million stores—these are an intimate part of the common life of our people—housekeepers, merchants, manufacturers, professional men, workers of all kinds. When storms come and wires go down, or an earthquake or great fire breaks gas and water mains, or a street car strike makes us walk to and from our homes, we realize what these conveniences mean to us. These facilities which we use so frequently and so freely could not be taken away now, or interfered with, without disrupting our social fabric.

Special Rate-Adjusting Body Provided by the State to Insure Uninterrupted Service.—It is very desirable, therefore, that provision should be made for insuring the steady and continuous performance of services which have come to be so vital to the comfort of our people. The means which have been provided for adjusting the relations between these service-purveyors and the public is in most states a public service commission.

Differences of view arise between company and public as to what shall be a fair charge for domestic lighting, the quality

of gas furnished, the kind of telephone service supplied or the message rates, the price of industrial power and commercial light, and in certain cases freight charges or regulations.

Instead of cutting off current or turning off the gas from a whole community when the rate is in dispute, or the city tearing up the rails or laying duplicate mains in the streets when service or charges are unsatisfactory, a rational method of settling disputes is provided, under which there is established by state authority a special administrative body, clothed with power to ascertain the facts, to formulate policies, and on these bases to render decisions and issue orders, which the contending parties are to obey. These businesses, charged with a public interest, are thus recognized as unique in character and entitled to a special tribunal before which the ultimate consumer, who pays the 8 billion dollars of bills, may have equal opportunity with the company to present his side of the questions at issue, and receive a prompt and just decision. For upon the confidence of both the public and the companies in the fairness and the promptness of the decisions of these commissions depends their usefulness in the work which they have been given to do.

CHAPTER III

FEDERAL COURTS AND UTILITY REGULATION

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Fifth and Fourteenth Constitutional Amendments.—From the standpoint of judicial review by the federal courts of state regulation of public utilities, two constitutional amendments are important—the Fifth and Fourteenth. The former provides:

> No person shall be held to answer for a capital or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except . . . .; nor shall any person . . . . be compelled, in any criminal case, to be a witness against himself, nor be deprived of life, liberty or property, without due process of law; nor shall private property be taken for public use without just compensation.

As this did not apply to state action, the Fourteenth Amendment was adopted; it reads in part:

> Nor shall any State deprive any person of life, liberty or property without due process of law, nor deny to any person within its jurisdiction the equal protection of the laws.

It is significant that the language of the two amendments is very similar, but that the restriction upon the states does not cover the taking of private property for public use without just compensation. If, therefore, any such limitation upon the states is to be found in the Federal Constitution, it must be found elsewhere than in an express provision.

Evolution of Confiscation Theory.—In interpreting the words "due process of law" where life, liberty or ordinary

roperty rights are at stake, the United States Supreme Court as construed them very narrowly. Such essential parts of "due process" as the grand jury system and the right to refuse o incriminate oneself have been excluded from these words, nd the federal courts have emphatically disclaimed any inter- st in the justice rendered by the local courts in criminal ases, provided the proper legal forms have been followed. In case involving ordinary property, the court in 1877 said:

> If private property be taken for public use without just compensation, it must be remembered that, when the Fourteenth Amendment was adopted, the provision on that subject, in immediate juxtaposition in the Fifth Amendment with the one we are construing (on due process of law) was left out, and this was taken.—Davidson *v.* New Orleans, 96 U. S. 97, 105.

In the early seventies, certain states began to reduce rail- oad rates by legislative act. The corporations affected fought renuously, and finally appealed to the federal courts. The uestion was raised whether these courts had jurisdiction, and pon what ground a state law regulating rates could be set side. The Supreme Court hesitated several years, but finally was virtually held that "due process of law" includes "just ompensation," notwithstanding the marked distinction be- veen the two amendments. The Constitution was judicially nended.

The practical effect is that a person threatened with death r imprisonment through a wrong decision in a criminal case unnot obtain redress in the federal courts, if the state authori- es have made any reasonable pretense of acting through "due rocess of law;" and the owner of property condemned by a ate at an inadequate price is helpless. In such a case, the upreme Court said:

> It is one of those matters of detail . . . . with which this court ought to have nothing to do. The way of arriving at

> the amount may be in some instances inequitable and unequal, but that is far from rising to the level of a constitutional problem and far from a case of taking property without due process of law.—Irrigation District *v.* Bradley, 164 U. S. 112, 176-7.

Nearly half a century elapsed between the decisions of the United States Supreme Court in the "Granger" cases in 1876 (Munn *v.* Illinois, 94 U. S. 113, and others in the same volume) and the latest decisions in the Southwestern Bell Telephone Co. case (Missouri *ex rel.* Southwestern Bell Telephone Co. *v.* Public Service Commission, decided May 21, 1923), the Bluefield Water Works case (Bluefield Water Works & Improvement Co. *v.* P. S. C. of West Va., decided June 11, 1923) and the Atlanta Gas case (Georgia Ry. & P. Co. *v.* Railroad Commission, decided June 11, 1923). But the distance traveled by the court in this period cannot be measured in mere years. In Munn *v.* Illinois, where the question of rate regulation as applied to warehouse charges was first presented to the United States Supreme Court for adjudication, the acts regulating rates were upheld, and it was ruled that such property, although it occupied no street, avenue or public place, was affected with a public interest, that the regulation of the rates charged was a proper exercise of the police power, and that the abuse of such power by legislative bodies was beyond the province of the courts to prevent. There was little in the decision to indicate that the Fourteenth Amendment set up the federal courts as the asylum of refuge to which public utilities could flee at the least provocation for injunctive relief.

Development of Judicial Control.—It was several years before a modification of the principles laid down in the "Granger" decisions was suggested by the court. In Spring Valley Water Works *v.* Schottler (110 U. S. 347, decided in 1886), there was an intimation of what was announced two

years later in the decisions of the Railroad Commission cases (116 U. S. 307 *et seq.*), where it was said:

> It is not inferred that this power of limitation or regulation is itself without limit. This power to regulate is not a power to destroy and limitation is not the equivalent of confiscation.

But in the eighties, there was no premonition of what has since become commonplace, for in Dow *v.* Beidelman (125 U. S. 680, decided 1888), Justice Gray, speaking for the court, said:

> The court has no means, if it would under any circumstances have the power, of determining that the rate of three cents a mile fixed by the legislature is unreasonable.

However, in Chicago, Milwaukee & St. Paul Railway *v.* Minnesota (134 U. S. 418, decided in 1890), it was held that to declare a rate fixed by legislature or a commission to be illegal or unreasonable was within the power of the courts.

It was 20 years after Munn *v.* Illinois, that the court first undertook to connect confiscation with value of property. In Reagan *v.* Farmers' Loan & Trust Co. (154 U. S. 362, 412) decided in 1894, the court said:

> It is unnecessary to decide, and we do not wish to be understood as laying down an absolute rule, that in every case a failure to produce some profit to those who have invested their money in the building of a road is conclusive that the tariff is unjust and unreasonable. And yet justice demands that every one should receive some compensation for the use of his money or property, if it be possible, without prejudice to the rights of others.

In a circuit court decision made in the fall of the same year (Ames *v.* Union Pacific Railway Co., 64 Fed. 165, 177), Justice Brewer said that the test of the reasonableness of rates had not yet been fully settled. He discussed several standards, among others "a fair interest on the actual value of the

property," and it would appear that in his mind the investment made by the security holders in the property was entitled to important consideration.

The Present Rule.—Four years later (in Smyth *v.* Ames, 169 U. S. 466, decided May 7, 1888) the United States Supreme Court made a definite statement of the test of reasonableness and started a long line of decisions which are by no means ended. It was definitely announced that:

> We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public.

No change has since been made in the rule, but courts and commissions have been wrestling for a generation to find out what this statement really means, and the latest decisions of the United States Supreme Court indicate that we are as far as ever, perhaps farther, from an ascertainment of how fair value is to be determined and what constitutes a fair return. If I properly interpret the majority decision in the Southwestern Bell Telephone Co. case, it is merely that the current costs of labor, supplies, etc., must be considered and that "an honest and intelligent forecast of probable future values" is essential. Then the court proceeds to add "at least" 25 per cent to the Commission's value, and finds the rates fixed by the Commission to be confiscatory. According to the opinion, the increase of 25 per cent is based upon the evidence of company witnesses to the effect that the "property was worth at least 25 per cent more than the Commission's estimate."

The Foretelling of Future Level of Prices.—The basis for the increase of 25 per cent, other than mere opinion, is not stated; and it may safely be predicted that in no case can

the "value" of a public utility be founded upon anything more than conjecture, speculation, hypothesis and imagination, if a regulatory body or a court is to give weight to a forecast of probable future values and to an estimate of what future construction costs will be. Indeed, if the Supreme Court has definitely ruled that the question of confiscation is to be determined by an opinion of what future prices will be, much that it has said when its personnel was different must go overboard.

In the Minnesota Rate cases (230 U. S. 352, decided in 1913), Justice Hughes, speaking for the court said:

> It is fundamental that the judicial power to declare legislative action invalid upon constitutional grounds is to be exercised only in clear cases. The constitutional invalidity must be manifest, and if it rests upon disputed questions of fact, the invalidated facts must be proved.

He also stated that the ascertainment of fair value "is not controlled by artificial rules," that "it is not a matter of formulas," that mere speculation should not be indulged in and that results depending upon conjecture should not be accepted. But, what is more conjectural or speculative than a "forecast of probable future values?" The whole reproduction value theory, as usually applied, is a tangled web of conjecture and speculation; and it becomes a ludicrous standard when courts are authorized to forecast probable future values. Experience has shown that it is quite difficult enough to determine past or present "values," to say nothing of what future prices are likely to be. If there is any person inside or outside of the judiciary who can accurately forecast future values, his opportunity for profit is beyond imagination. The world will make a beaten path to his door.

Definite Standard Lacking.—In the Bluefield Water Works case, decided June 11, 1923, where the court again re-

versed the decision of the Public Service Commission and the state court, Justice Butler quotes the language of Justice McReynolds as to a forecast of probable future values quite clearly in support of the decision he rendered; but he does not undertake to state to what extent the valuation of the Commission is deficient. He finds that the order from which appeal was taken is in error, because the value fixed was too small and the rate of return insufficient. He says that the Commission "did not accord proper, if any, weight to the greatly enhanced costs of construction in 1920 over those prevailing about 1915 and before the War." He is of the opinion that some weight should be given to such enhanced costs, but he does not adopt 25 per cent or any percentage as an indication of how much *at least* should be added, as does Justice McReynolds in the Southwestern Bell Telephone case.

In the Atlanta Gas case, decided upon the same day, the court sustained the decision of the United States District Court, which had, with certain modifications, affirmed the decision of the Commission. Justice McKenna dissented and pointed out that in each of the opinions rendered upon June 11, prior decisions of the court were quoted as approving the conclusions reached. In the Bluefield Water Works case, the Commission's decision was overturned because proper weight had not been given to reproduction cost at current prices. In the Atlanta Gas case, the decision of the Commission was upheld, although it did not state what weight had been given to reproduction cost at current prices, except in the case of land, where current values had been taken.

These recent opinions illustrate clearly the lack of a definite rule by which lower courts or commissions may be guided. Some weight must be given to reproduction cost, if the majority of the Supreme Court are to be followed, but how much weight is as far from being determined as it was when the question was first raised.

Unimpaired Investment.—The minority opinion in the Southwestern Bell Telephone Co. case, written by Justice Brandeis and concurred in by Justice Holmes presents a definite, understandable and non-theoretical basis for rate-making, i. e., prudent unimpaired investment. These two justices do not hesitate to declare that the rule of Smyth *v.* Ames, as interpreted by the majority of the court, is legally and economically unsound. That it has always been elusive, intangible and productive of great difference of opinion everyone connected with rate-making has known for a generation; and if speculation as to future values is now to be made a part of the rule, is it not time that the Supreme Court ceased to follow the Smyth *v.* Ames decision when it is so inapplicable to present conditions, or that it revise its conception of what that rule is when applied to present conditions? Is it not time that unimpaired investment prudently made be taken as a basis of constitutional law as well as of sound public policy?

Judicial Control of Rates.—The present situation is due fundamentaly to two factors (1) the application of the Fourteenth Amendment to legislative regulation of rates, and (2) the use of the word "value" as defining the limit of confiscation by the court in Smyth *v.* Ames and other opinions.

We have so long been accustomed to the rule that the federal courts will take jurisdiction in any case where in plausible affidavits it is asserted that a rate statute, ordinance or order deprives a public utility company of a fair return upon the fair value of its property, that we seldom stop to consider the wisdom of this practice or conceive of a time when it was not in vogue. As a matter of fact, the "fair return on fair value" rule is barely of voting age, and was not enunciated until the federal courts had been passing upon questions of rate statutes for many years.

Further, the Fourteenth Amendment was not intended to confer upon the federal courts jurisdiction over rate regulation by states. It was a reconstruction amendment designed to fit conditions in the South. There was no thought that its enactment would enable public utilities to escape state regulation and control by running at once to the federal courts. It is true that at that time many of our public utilities had not been developed. The telephone had yet to be invented, and the distribution of electricity for light, heat and power had not yet been made practicable. Street railways were few. But this does not mean that when the Fourteenth Amendment was under discussion and was being voted upon, the power of the state to regulate rates was a new or unheard of thing. It was already of great age.

Value Given a Special Meaning.—The second error was in the use of the word "value" as the standard for confiscation. Until the United States Supreme Court gave it a new meaning, "value" was familiar to every one as power in exchange, that is, power to command other desirable commodities as between a willing buyer and a willing seller. The only universal and general conception of value is what a thing will sell for; and prior to the Smyth *v.* Ames decision and its descendants, there was no recognized difference between the value of a railroad system, a gas or water works plant and of a load of corn.

The courts were not slow in realizing and declaring that "value" as used in the Smyth *v.* Ames rule could not possibly have the same meaning as in current use, for market value primarily depends upon the amount of net earnings, value being measured in ordinary usage by what a thing will produce. If value for rate-making purposes were to be measured by earnings, and if the reasonableness of the earnings themselves were being considered, it is obvious that no rate

would ever be unreasonable. Value would be the capitalized value of the earnings, and a fair return upon that value would be the earnings themselves. Consequently, earnings could never be changed, as they would always be reasonable, unless it could be shown that the same amount of earnings would be produced even if the rates charged were reduced. This may sometimes be the case, but ordinarily a marked reduction in rates reduces earnings, although perhaps not to the same degree. It is the exception and not the rule that an appreciable reduction in rates does not reduce net earnings.

Difficulty of Application.—But even if the general rule for determining "value" in confiscation cases by what the property could be sold for were correct in theory, the rule would be difficult of practical application. Utilities are not bought and sold from day to day. Stocks and bonds in some companies may change hands frequently; but the sale of a few shares of stock or a few thousand dollars in bonds does not indicate what all the stock or all the bonds would sell for; and such sale price would be still less an indication of what the undertaking in its entirety would bring as between a willing buyer and a willing seller.

For these reasons, and others that might be given, the usual test of "value" was set aside by the courts from the earliest announcement of the fair value rule and a search begun for some other standard. From time to time judges have enumerated various factors to be considered, and have usually ended by saying that their list was not complete and that all other relevant factors should be considered, without indicating what weight should be given to any one factor. The trouble has always been that the word "value" has been a stumbling block instead of an aid to a solution. If the court could not establish a clear, definite and unmistakable test of confiscation, as evidently it has been unable to do,

and had frankly adopted a phrase such as "amount" or "rate base" or "fair return," which need not have been robbed of its current meaning, much trouble would have been avoided. A mere change of words would not have established a correct standard, but it would have avoided the ever-recurring discussion as to why and to what extent "value" for rate-making differs from "value" in common parlance.

Value Standard Not Required by Constitution.—The Fourteenth Amendment, even as judicially expanded, does not require the "fair value" test. As Justice Brandeis says in his dissenting opinion in the Southwestern Bell Telephone Co. case, when an investor embarks in a public utility, he accepts the obligation to charge reasonable rates and what he devotes to the public service is not the reproduction cost of the property at some future time but the capital which he invests. Upon the other hand, the state vouchsafes to him an opportunity to earn a return at reasonable rates, upon the basis of the cost of the service. In determining cost, no one would undertake to maintain that if coal, oil and other materials used in operating a plant were to go up or down before the supply which had been purchased was exhausted, the operating company should charge to the cost of the service the current prices of these materials at the time they were consumed. What difference is there in reality between material devoted to the service of the public which is actually used up in a year and material the life of which is in excess of a year?

The basic principle of due process is really that the investor shall be treated fairly, and if the courts had left regulatory bodies with greater responsibility, as well as greater latitude, the solution would probably have been found long before this; but in each opinion an attempt has been made to throw some light upon the meaning of the word "value" as used in rate

regulation, or to comply with some statement made by a higher court, or to present a fine-spun theory to show compliance with the language of the federal decisions, while yet giving the public reasonable rates, with the result that today the situation is as much confused as ever and we are possibly farther from an ultimate decision on the basis of sound public policy than in 1898.

Early Objections to Cost and Investment Standards.—In the early cases—in the eighties and nineties—rate regulation was largely concerned with railroad rates and little with local utilities, such as gas, water, electric lights, and street railways. The railroad situation has always been a distinct problem. The railroads were largely built under circumstances far different from those existing in any other utility. Accounts were often improperly kept. Securities were issued without regulation and control. Construction companies often accepted bonds in payment and stock as a bonus. Parallel lines were built as an incidental feature of a war between hostile financial interests. Other lines were built for the development of a public domain and were recipients of large grants of land or public funds without a clear understanding of the purposes for which they were to be used or the reasons for which they were granted.

Consequently, when rate regulation began, the actual facts as to construction costs and financial operations were either not available, or so full of questionable dealings, that the public was not satisfied to accept the companies' claims. The latter often asserted that the amount of stock and bonds outstanding represented the amount upon which they were entitled to compensation, and either were unable to show the actual cost of the property, or produced records so open to doubt and suspicion that no public authority would accept what was alleged to be the cost of the property.

Development of Reproduction Cost Standard.—As a result, recourse was had to estimates of what a property would cost under efficient management, economical administration, and sound engineering. In view of the conditions which have prevailed in the railroad industry, it is perhaps the best solution that could have been made. The unfortunate feature is that once the plan had been started and had received more or less approval by the courts, it was easy for others to follow in their footsteps, and as time passed, to assume that reproduction cost less depreciation on a basis of average prices for a period of time was the only or most important method and the one which should be universally followed.

Subversion of Reproduction Cost.—Many things followed the first use of reproduction cost. The utility companies gave the theory a twist in their favor by adopting an interpretation of the phrase which called for a very theoretical and imaginary program. They assumed that all conditions remained unchanged when they began the theoretical reproduction of the property, except one, which was that the property to be reproduced was non-existent. They assumed that the identical property was to be reproduced in its entirety, beginning at once and building the entire undertaking as rapidly as it was possible for work to be done. They imagined an elaborate process from the conception of the idea of building the utility, for which witnesses testified large sums should be allowed, until step by step, precept upon precept, line upon line, they evolved the completed utility, attaching imaginary costs of large amounts to every conceivable phase that a utility might pass through. To these figures they added intangible items, duplicating words and "costs" when the construction process itself seemed not sufficiently fertile. They ignored depreciation and said that a property operating efficiently was as good as new.

By this process the utilities submitted to courts and commissions figures which were preposterous. The base prices for labor and materials were not so erroneous, but the theoretical additions were beyond all reason. However, prior to the War, when prices had not risen at a rapid rate, although slightly ascending for some 15 or 20 years, courts and commissions could, by carefully differentiating fact from theory, and by eliminating the improper features of the reproduction cost method, obtain an amount called "fair value" very slightly in excess of the unimpaired investment in the property which was generally considered fair.

Effect of War Conditions.—Even in the first two years of the War, before utility construction costs had been much inflated, the reproduction cost method reasonably applied was relied upon to a considerable degree, particularly where actual costs were not obtainable. It was held even then, however, that reproduction cost should not be taken literally. Nothing is clearer than that, if a railroad, for example, were to be reproduced and all other conditions were to be assumed as they are now, it would be necessary to pay enormous sums in the way of legal expenses, condemnation costs, etc., in order to obtain a right of way, particularly in cities which have been built up largely as a result of the construction of the railroad itself. Further, the land desired would be occupied by buildings. These would need to be removed at considerable expense and at great loss. To secure permission to carry out such a scheme would be expensive, because it would be fought by those whose property would be taken. Indeed, the whole process is such an imaginary one and so far from what has actually happened that an appraiser with a fertile mind can conjure up endless costs. Yet all of them would have some plausible basis if one were to adopt the reproduction cost theory and blandly follow it to a conclusion.

Reproduction Cost Theory Modified by Courts.—In the Minnesota rate cases, this phase was ably presented, and it was ruled in the lower federal court that these costs were proper under the reproduction theory, which had been approved by the United States Supreme Court. When the Supreme Court came to consider the question on appeal, the application of the theory was rejected, because it produced unfair results and gave investors imaginary profits, to which the court held they were not entitled.

Similarly, the Supreme Court disposed of the claim that paving over mains should be included in "value" upon the basis of what it would cost on the valuation day to remove the paving then existing and to replace it. The court stated in Des Moines Gas Co. *v.* Des Moines, 238 U. S. 171 (see also People *ex rel.* Kings County Lighting Co. *v.* Wilcox, 210 N. Y. 479) that the reproduction cost theory was inapplicable and that all the company was entitled to was a return upon the paving originally cut through and replaced when the mains were laid, i. e., investment. But it is obvious that if the property were to be reproduced today and if reproduction cost today is the standard of present value, the paving *originally* replaced would have nothing whatever to do with present costs. Further, it is no more unjust that a company should have a return upon this increment or increase in reproduction cost than that it should have a return upon 25 per cent of the increase in commodity prices during the War.

Reproduction Cost Standard Rejected by Commissions.—Commissions and courts have also refused to follow the theoretical construction programs which witnesses for the companies have concocted because they are contrary to experience, because such expenses have not been incurred and because the companies have not been called upon to make any such investments. Yet, if reproduction cost is to be followed and

applied as *the* standard of fair value, it is difficult to explain why such costs, unreal and imaginary as they may be, should not be given the same consideration that is given to current prices and the cost of constructing a utility at prices in effect on one day or during a short period of time. Utilities are not constructed as complete units. They are not constructed on the basis of prices as of one day or for a short period, and it is no more unfair to include expenses of acquiring land under supposititious circumstances, of paving over mains, and imaginary overheads than it is to take prices for labor and materials which have not been paid.

The error in this direction has more frequently been committed by courts than by commissions. Perhaps it is because commissions, being more constantly and intimately in touch with the entire problem of regulating utilities, having had a larger number of cases and, therefore, a wider experience, and having more frequent and constant opportunity to compare estimates of witnesses appearing before them with actual costs, are better judges of what is fair and reasonable and more keen to differentiate fact from theory and conjectural expenses from actual costs. But whatever may be the reasons, the fact remains that the courts, and particularly the federal courts, have been more prone to follow reproduction cost as a standard, even under war-time prices, than have commissions and legislatures. If regulatory bodies are forced by decisions of the higher courts to permit a return upon a rate-base inflated by the high prices still current, it will not be because they believe in the fairness of such a method (most of them have already gone upon record that such a method is not fair) but because they are compelled to do so by the courts.

Attitude of Courts Toward State Regulation.—The attitude of the federal courts toward state regulatory bodies seems to have undergone a change. I have already quoted

from the opinion by Justice Hughes in the Minnesota Rate cases to the effect that the courts should only interfere with legislative action in clear cases. The rule is stated by Justice Brandeis in the Southwestern Bell Telephone Co. case, as follows:

> A rate order will not be set aside, unless the evidence compels conviction that a fair-minded board could not have reached the conclusion that the rate would prove adequate,

quoting the following cases:

> San Diego Land & Town Co. *v.* National City, 174 U. S. 739, 754; San Diego Land & Town Co. *v.* Jasper, 189 U. S. 439, 442; Knoxville *v.* Knoxville Water Co., 212 U. S. 1, 17; Van Dyke *v.* Geary, 244 U. S. 39, 49; Galveston Electric Co. *v.* Galveston, 258 U. S. 388, 401, 402.

If this rule was applied to the Southwestern Bell Telephone Co. case, there is no evidence of such application in the majority opinion. No reference is made to any indication that the Public Service Commission of Missouri, which made the original decision from which appeal was taken, was not a fair-minded board. The Supreme Court of Missouri upheld the Commission, and the opinion has every appearance of fairness.

It is stated in the opinion of the United States Supreme Court that:

> Obviously, the Commission undertook to value the property without according any weight to the greatly enhanced costs of material, labor, supplies, etc., over those prevailing in 1913, 1914 and 1916.

As a matter of fact, the Commission's opinion shows that it did consider such enhanced costs so far as they had actually been paid by the company up to June 30, 1919, the date as of which the case was determined. The point seems to be that the Commission did not allow the company an increase of "at least 25 per cent" upon *all* of its property, which increase the

company had not paid and which represented no part of its investment or cost of property devoted to the public service. But the fact that a public service commission did not make such allowance is not proof that a fair-minded board could not have reached the same conclusion. Indeed, similar conclusions have been reached by many commissions and courts. To brand them all as not being fair-minded would be to indict whole communities. In the Bluefield Water Works case the court seems to have gone still further, for Justice Butler, citing Ohio Valley Co. *v.* Ben Avon Borough, 253 U. S. 287, 289, says:

> Plaintiff in error is entitled under the due process clause in the Fourteenth Amendment to the independent judgment of the court as to both law and facts.

What is the "independent judgment of the court" as to facts? Does it mean that the court is to treat the case before it on appeal practically as a new proposition and to substitute its judgment of what is fair and reasonable for the decision of the commission or the state court? If it does mean this, has not the court practically changed the rule, enlarged the scope of the federal courts and made of the judiciary an appellate administrative tribunal? If this is the meaning of the Fourteenth Amendment, is it not true that not only has "due process" been expanded, but that the court has made itself the final authority for weighing evidence, as well as for interpreting the law?

Is Present Trend Wise?—The lower federal courts have also manifested a tendency to interfere with state action even before the case has been thoroughly tried out. The customary method for a utility to follow is to ask for a temporary injunction, restraining the authorities from enforcing a statute or ordinance, and in support thereof to submit affidavits by the officers or employees of the company, purporting to show the

value of the property and the earnings which the rates being attacked will yield. These points and many others are usually the subject of great diversity of opinion and often are not determined until months have been spent in taking evidence, hundreds of exhibits submitted, and thousands of pages of testimony recorded. In one case, a United States District Court decided upon affidavits before testimony had been taken "that no computation can reduce the basis for return much below $300,000,000," although the court also found that the cost of that property, *without any deduction for depreciation,* was about $240,000,000. If it is necessary, in order to protect property, that injunctions be granted before testimony is heard, it does seem as if the plan of determining value before testimony is taken is pushing the jurisdiction of the federal courts too far.

For the moment, the attitude of the federal courts towards state regulation of public utilities is being heralded as a great advantage to utilities and as an indication that the federal judiciary may be considered the great bulwark of property interests. Whether this proves to be true and whether the emphasis now being placed upon reproduction cost as compared with investment is really for the best interests of the utilities, their investors and the public, remains to be seen. If "at least 25 per cent" must be added under present conditions merely because the cost of duplication is considerably in excess of actual cost, what will happen if prices fall as they have fallen after every great war to a level below that existing prior to the war. Under such circumstances, there must, of course, be a *deduction* from investment, and the longer the present high level remains, the greater will be the effect of such a drop. Can the federal courts then fall back on investment as the thing to be protected by the Federal Constitution? They are refusing to accept it as the standard now, and yet a drop in prices such as that which followed the Civil War will mean

that utilities will obtain a return upon amounts considerably below the actual unimpaired capital investment made during high prices. This drop, which the investors cannot prevent and for which they were not responsible, will nevertheless cause them a great loss, and the effect upon utilities will be far from beneficial. Utility investors may now benefit temporarily, but the ultimate effect will hardly be to their advantage.

CHAPTER IV

REGULATION AND THE FRANCHISE

By Charles M. Fassett[1]

Late Specialist in Municipal Government at the University of Kansas and formerly Mayor of Spokane

Nature of the Franchise.—A franchise was originally a grant or largess from a sovereign without consideration. A public utility franchise was in the early history of the business a contract involving a consideration and under the law as sacred and binding as any other contract. It is now, however, a contract only binding in certain of its provisions until those provisions are declared void or inoperative by any agency of the state, supposedly representative of the public interest.[2] This change of status has come from the comparatively recent idea that there may be three parties to any contract; that agreements between men or corporations or cities, involving matters of import to the citizens of a community, are "affected with a public interest" and thereby become subjects of scrutiny, modification or curtailment by some public authority, representing what Ex-Governor Allen of Kansas calls "the party of the third part." A franchise is not what it used to be, and there has been some argument as to whether or not a public utility franchise is necessary at all, under the new conditions.[3]

[1] Charles M. Fassett died about two o'clock on the afternoon of Friday, August 10, 1923, at his summer home at Spirit Lake, Washington. He had just returned from across the lake, where he had given a memorial address in honor of President Harding, whose funeral was held that day, to a large number of people from the surrounding camps.

[2] All contracts are made subject to the exercise of the police power of the state. In public utility relations the police power is very much more important than in ordinary cases. For example, two persons may make a contract as to payments for service rendered or articles furnished, and this agreement is subject to very few limitations. In the case of a public utility, the limitations are very important. Indeed, they are of such a distinctive character as practically to place public utility contracts in a separate class.—M. R. Maltbie.

[3] The franchise has not been changed, but the courts have interpreted the police power in a way which had not been anticipated. Prior to the War, the exercise of

A municipal public utility may be defined as a business organized to supply the community with some commodity or service in large or general demand, which requires a franchise for the use of the streets for its permanent structures. The street belongs to the public and its employment for transportation and access to land is a legitimate public use which must be conserved by limiting and regulating the construction and placement of the permanent structures of the utilities. And this regulation can only be adequately performed in its details by authority of a local government, even though that government has no power in the regulation of the utility rates and service. Instances are not lacking of the operation of a utility for a time without a franchise, but this is usually due to the expiration of the time limit without a renewal, and the situation is not conducive to the public interest. No utility can render adequate service to a municipality and remain static, and the expansions and extensions which are continually demanded to keep pace with civic growth require both additional rights on the streets and new capital in the business.

Early and Present-Day Franchise.—In the early days of public utility development a franchise was a short and simple document; it frequently gave the right to operate without restrictions, or with a consideration so trivial as to be negligible. Blanket grants were made which gave rights "to any person or corporation desiring to operate an electric light plant

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the police power was practically to reduce rates fixed in franchises, and it was assumed that a company could not increase rates fixed in a franchise of its own volition. Practically no cases arose of this sort, for costs did not so greatly increase as to cause utilities to attempt to increase rates.

I do not understand that a company without authorization from the legislature can yet increase rates fixed in a franchise, but the courts have held that the police power residing in the state legislature may be properly exercised by it to authorize increases of franchise rates as legally as it could formerly be exercised to decrease franchise rates. Legislatures have delegated authority to commissions and the courts have been prone to approve any action which might be construed as properly authorizing an increase without scrutinizing such action with as great care as they did scrutinize it and do now scrutinize it when it comes to a restriction of orders which are contested by utilities. In other words, the courts have generally tried to relieve utilities where it was possible to do so and have been critical of statute, ordinances and orders limiting rates during this period of high prices.—M. R. Maltbie.

in the city of ....." Standards of service did not exist, rate-making as a science was unknown, the public utility was not recognized as a natural monopoly, for the only protection the public had was through the existence or the threat of competition. Of course, there were cities where utilities were honestly financed and decently run, but the wonderful growth of the business, particularly in the large cities, attracted to it men whose impelling motive was to reap the greatest possible profit from it; to give as little as possible and to charge as much as possible for it.[4] The motto, "All the traffic will bear," was not confined in its application to railroad freight and fares. The growth of public regulation has been in direct response to the excesses of the early operators.

From such conditions have developed the modern notions of what a franchise should contain in the way of provisions for the protection of the public. And these conditions are also largely responsible for the movement for public ownership and operation of utilities which is well established in Europe and has made considerable progress in the United States.

It is likely that present public officials, particularly in the older settled sections of the country, will have more occasion to negotiate renewals of franchises than original grants. And they will thereby have better opportunity to safeguard the rights of their people for the future, for utility investments are not easily removed or liquidated. This, however, is about the only advantage on the side of the public. In franchise negotiations the utility corporations are usually represented by their

[4] H. C. Spurr, editor of Public Utility Reports Annotated, says: "The idea conveyed is that the ruling passion of utility owners is to obtain the greatest possible profits and to give the least possible service. The truth is that the men engaged in public utility enterprises have, for the most part, been honest. They have conducted this utility business as honestly and decently as other men have conducted other business enterprises. The public utility business to-day is on a higher moral plane than any other kind of business in the state. Practices which are common in every other business would not be tolerated in the utility business. The country probably owes more to the men who have had the vision and courage to build, carry on and develop our public utilities than to any other single group of men in the country. It is hard to believe that the sole motive of these men was to get the greatest possible profit and to give as little as possible. Such is the motive of little men, not of big men, and the utilities were not developed by little men."

trained and experienced officials, supported by the best legal and engineering talent available in the country, and fortified by a knowledge of all the "tricks of the trade" acquired by long practice. On behalf of the public is likely to be found a mayor or city commissioner new to the business, assisted by a city attorney equally ignorant of the conduct of negotiations of this character. Few public officials, particularly in the smaller cities, appreciate the usefulness of expert engineering service in such matters, and city councils are usually loath to appropriate the necessary funds. And the interests of the public almost inevitably suffer.

Fundamental Principles of Franchise Provisions.—For a statement of the fundamental principles of utility policy upon which franchise provisions should be based, the proposals advanced by the committee of the National Municipal League on the model charter drafted by them in 1916, are difficult to improve upon:

> The public utility and franchise policy embodied in a model city charter should be so formulated as to conserve and further the following purposes:
>
> I. To secure to the people of the city the best public utility service that is practicable.
>
> II. To secure and preserve to the city as a municipal corporation the fullest possible control of the streets and of their special uses.
>
> III. To remove as far as practicable the obstacles in the way of the extension of municipal ownership and operation of public utilities, and to render practicable the success of such ownership and operation when undertaken.
>
> IV. To secure for the people of the city public utility rates as low as practicable, consistent with the realization of the three purposes above set forth.
>
> It should be no part of such policy to secure compensation for franchises or special revenues for general city purposes by an indirect tax upon the consumers of public utility services.

In formulating a policy to carry out the four purposes above stated, the following principles should be recognized:

1. Each utility serving an urban community should be treated as far as practicable as a monopoly with the obligations of a monopoly; and its operation within the city should be based as far as practicable upon a single comprehensive ordinance or franchise grant, uniform in its applications to all parts of the city and to all extensions of plant and service.

2. Every franchise should be revocable by the city upon just compensation being paid to its owners, when the city is prepared to undertake public ownership.

3. The control of the location and character of public utility fixtures, the character and amount of service rendered and the rates charged therefor should be reserved to the city, subject to reasonable review by the courts or a state utilities commission where one exists.

4. The granting and enforcement of franchises and the regulation of utilities operating thereunder should be subject to adequate public scrutiny and discussion and should receive full consideration by an expert bureau of the city government established and maintained for that purpose, or in case the maintenance of such bureau is impracticable, by an officer or committee designated for the purpose.

5. Private investments in public utilities should be treated as investments in aid of public credit and subject to public control, and should be safeguarded in every possible way and the rate of return thereon should be reduced to the minimum return necessary in the case of safe investments with a fixed and substantially assured fair earning power.

Modern city charters give much attention to the conditions which shall be contained in public utility franchises, and not infrequently contain a considerable number of detailed provisions which must be inserted in every franchise granted in the city. These provisions generally cover limitation of term, conditions of renewal, option of purchase by the municipal ty, common user privileges, requirement of street paving, franchise tax, extensions and the regulation of rates and service.

The use of the referendum or franchise ordinances is often made obligatory.

Types of Utility Franchises—Indeterminate Grant.—Two new types of utility franchise have developed in recent years as the result of the growth of the understanding of municipal utilities as natural monopolies and of the recognition of the public interest in the franchise contract: the indeterminate grant and the "service-at-cost" franchise, the former applicable to all the different utilities and the latter so far only applied to urban transportation.

The essential feature of the indeterminate franchise is, as its name implies, that the grant is not limited to a fixed term but continues until it shall be terminated by action of the grantor, which action can only be taken after proper and timely notice and under conditions fair to the grantee. It is by no means a perpetual franchise, as some of its opponents have tried to make out, for no indeterminate franchise is complete without adequate provisions for its recapture by the public for the purpose of public ownership and operation, with a method of determining the price which shall be paid for the property on a basis which is fair and just to all parties concerned. It gives the opportunity to the utility management to show by its operations whether or not the claim of superiority for private ownership is well founded; it gives to the public certain rights of surveillance and supervision, and by appropriate action of some designated governmental agency or before some public tribunal, the power to enforce such service, rates and extensions as may be required to meet the needs of the community served, and which shall not imperil or destroy the investment of the security holders. It avoids the uncertainties and interruptions which accompany the approach of the end of the term of a fixed-term franchise.

The danger of the indeterminate franchise, from the standpoint of the public interest, is that if it can only be terminated by purchase of the property by the public, and if its provisions as to the sale or transfer are not carefully drawn so that the city may have ample time in which to decide the question and to arrange the necessary financial operations after it has decided to buy, then the franchise may easily become perpetual. Further, a city ought to have the means of getting rid of, without purchase, a utility which has, in its methods or its appliances, become obsolete through new inventions or applications. For example, if it develops that the urban transportation of the future is to be carried on rubber-tired vehicles, it would not be fair to ask the public to pay again for obsolete and costly tracks and rolling stock the value of which had long since been paid by the car-riders in depreciation or amortization charges.

Service-at-Cost Franchise.—The service-at-cost franchise as applied to street railway corporations is a development of the older scheme of determining gas rates and dividends of gas companies, known as "the London sliding scale," [illegible] by profits to stockholders and operators could only be increased to a limited maximum and then only by a reduction [illegible] the rates to consumers.

The essentials of "service-at-cost" are:

1. A recognition of the monopolistic character of a public utility.
2. Fixing the value of the property as a basis for rate-making and also for purchase by the public.
3. Determining a rate of earning allowable upon the fixed valuation minus accrued depreciation and plus authorized increases in investment.
4. Establishing an operating fund or reservoir of undistrib-

uted earnings sufficiently large to carry operations over minor seasonal or unpredictable variations.

5. Fixing a sliding scale of fares which increase automatically on depletion of the operating fund and decrease on its reaching a fixed maximum.
6. Providing specific means for the transfer of the utility to another operating company or to the city for public operation and ownership.
7. Giving to the public very definite and important authority over accounting, financial management and physical operation of the plant and service.

Its advocates see in this proposal a means of getting good service at reasonable rates without injustice to the investor, of retaining to some extent that private initiative and incentive to efficient management which they believe essential to successful operation, and conformity to the good old American doctrine of individualism. Its opponents suspect that "service-at-cost" will be understood as "cost plus" and will parallel the experiences of government ship building and some other activities during the World War. They fear that the utility management, having an unlimited reservoir of tax funds to draw upon, will be more interested in extravagance than economy. The street railway owners, knowing that the old, one-sided type of franchise, with increased rates of fare, cannot now be obtained, suffering from a decrease in earnings so marked as to threaten the life of the business, and fearful of the total loss of the investment, see only two alternatives to bankruptcy: a service-at-cost franchise or public ownership. Each is now being advocated by men to whom either proposal would have been unthinkable ten years ago.

Anomalous Position of Utility Commissions.—In dealing with matters commonly contained in utility franchises, commissions have found themselves in an anomalous position,

unique in the history of public tribunals. The laws which created them were primarily designed to protect the public interest, and hence they were charged with certain duties of inspection and investigation either on their own motion or after complaint, and were furnished with an organization, more or less complete, of engineers, accountants, legal counsel and inspectors. They were charged with finding out whether or not the utility service was adequate and constant, and if the rates charged were "fair, just, reasonable and sufficient," and were given the power of making such rules and orders, entirely independent of any provisions of any franchise contract, as were necessary to bring about these conditions, usually subject to appeal to the courts. They were also made courts of trial for contentions between the utilities and the communities served by them, whether or not the matters in controversy were definitely set forth in franchises, and this latter duty has developed into much the larger share of their activities. On the one hand, they are the agencies of the public, charged with the active and affirmative protection of its interests, and on the other hand, they are supposed to be impartial arbitrators, giving proper hearing to conflicting claims and rendering just decisions thereon.[5]

Need of Franchise When Utility Commissions Exist. Without a public service commission, a franchise contract is as binding upon its makers as any other common law contract; with a public service commission, a franchise contract is binding in no particular which under the law may be construed as within the province of the commission to investigate and de-

[5] H. C. Spurr, editor of Public Utility Reports Annotated, says: "If the author means to assert that the duties of the Commissions are conflicting he is certainly mistaken. The Commissions exercise no powers not possessed by the legislature itself. Each department of the government may and does, under the Constitution, and in the performance of its duties, exercise certain powers belonging to other departments of the government. In whatever capacity the State Commissions act, they always represent the public, no one else."

termine. What, then, is the necessity of a franchise in states where public service commissions exist?

Provisions Not Included in Commission's Jurisdiction.—First, many matters of import in the use of the streets for the structures of the utility are not usually included within the province of the commissions by the laws which create them. These laws relate largely to rates, service, finance and accounting, with particular stress upon relations between the utility and its patrons. Commissions are slow to interfere when matters which are likely to breed contention are agreed upon by the contracting parties, either in the franchise or by subsequent negotiations. If city officials who have supervision of the relations between the utilities and their customers are fair-minded men who know what they want and what it is worth, they will frequently find the operators of the utility willing to adjust differences, even to the lowering of unreasonably high rates, rather than fight the matter out before a commission or a court. It is pretty well settled that a city should have absolute control over its streets and the structures in them, the states having delegated their police power to the cities for this specific purpose long before public service commissions came into being.

The term the grant is to run, the placement of poles, conduits, pipes and man-holes to conform with and to accommodate like structures of the city and of other utilities, the protection of trees and of rights of access to private property, the removal of structures when necessary, the replacement of the streets when torn up, damages to persons or property by reason of disturbed streets and other matters of like local character, must be part of the contract. Recapture provisions, to make public ownership possible if and when the city should desire it, under terms fair to both parties, should be part of every franchise. The contingency of change of ownership

of the utility should be foreseen and provision made to protect the patrons of the utility from injury through inflated sales and extravagant leases. If the payment of a franchise tax or any so-called free service is required, if the city may use poles or conduits of the utility for its fire or police alarm wires, if a common user requirement is desired, if re-sale of franchise is to be prohibited, if records and books of account are to be locally kept and made accessible to the officials of the city—all these and such other matters as may be of moment in the conduct of specific utilities should be a part of the contract.

Utility Investment Protected.—Secondly, a franchise is necessary to the utility company, to determine its rights and to protect its investment. It is not only unjust and unreasonable to expect a utility corporation to make its investment without giving it specific power to carry on its business and protect its capital; no money could be obtained for an undertaking not so protected. Every fixed-term franchise should contain provision for that growth of the business which may be anticipated in any growing city, and unless protection of the money and reasonable hope for adequate interest upon additions to capital required for extensions and improvements is provided in the franchise, the service cannot be expected to grow with the public need and it will inevitably deteriorate as the end of the term approaches. If no provisions have been made in the franchise for amortization of the investment during its term, there must be some protection provided for the owners at the end of the term, so that they need not look forward to being driven from the streets as trespassers.

Again, a franchise is necessary because legislatures can and sometimes do repeal the laws they have enacted in past sessions, but city councils cannot so lightly repudiate their obligations under franchise contracts. There is a growing sentiment for home rule for cities, and this has resulted, in a few states, in

the adoption of constitutional amendments which take the regulation of a city's internal affairs out of the hands of the legislature. A franchise may frankly recognize the exclusive power of a state commission over the regulation of rates and service, but it should contain the provision that rates may be fixed and service regulated by the city in case the commission's authority should be taken away from it. Any radical change in the public service commission laws may work havoc in a city's control of its utilities unless the possibility of such change be provided for in its utility franchise.

Renewal of Franchises.—It is the plain duty of city governments to look ahead farther than it is common for them to do, particularly in the matter of renewal of expiring utility franchises. The idea that "whatever happens will not happen to me" is all too prevalent among city officials, but is no excuse for neglecting the plain obligations of a continuing government. Preparation and negotiation of franchise renewals should begin some years before expiration, in order to minimize the uncertainties of the situation both in behalf of the utility and its patrons. Service will surely lag and equipment decay as the end of the term approaches unless this is done. It need not be feared, however, that service will stop on the day the franchise term expires, even if no renewal is accomplished. Under our present conception of utility regulation the company cannot turn off the gas or refuse to run the street cars even though the franchise has expired. And yet there may be danger in beginning too early in renewals. The Spokane city charter has recognized this in its provision that "no franchise shall be renewed earlier than three years prior to its expiration." A city council under the control of utility interests may tie the city's hands for many years to come.

It is a common practice of street railway operators to blame their troubles on limited term franchises, or on the ever-

tightening bands of public regulation. The real causes of the decay of this business may be found in the introduction of the automobile, plus the financial excesses of the street railway management which kept them on the verge of bankruptcy even in their days of greatest prosperity. Public regulation and the franchises under which they were operating did not fully succeed in preventing the pyramiding of their securities, the exhaustion of their reserve and the depletion of their depreciation funds. Every period of prosperity was the occasion for more stock issues, loose expenditures and large dividends, while plants and property were often allowed to deteriorate. Excessive over-capitalization, reckless financing, exorbitant leases and indifference to public needs or public duties are written large in the history of street railways in many of the larger American cities, and some of them can tell a story of swindled stockholders, stolen funds and debauched city councils. The public interest now demands better franchises, and other things besides.

CHAPTER V

MAJOR PROBLEMS PRESENTED TO STATE COMMISSIONS

By Donald R. Richberg

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Determining Cost of Service.—The work of the state public utilities commissions is concerned largely with two matters —rates and service. It will be the particular purpose of this chapter to discuss the questions involved in the fixing of reasonable rates.

To determine the reasonable rate for a public utility service requires essentially a finding of the cost of service. The books of the companies will furnish fairly reliable evidence concerning current operating expenses. It is the duty of a regulatory body to analyze these expenses in order to determine whether they represent necessary and reasonable costs of operation, and also to determine how such costs shall be apportioned to the different varieties of service furnished or to apportion rates so that they shall be in general compensatory.

For example, the cost of service to large consumers of electricity or gas may be less per unit than the cost to the small consumer and therefore warrant lower rates for wholesale consumption. On the other hand, this standard cannot be too strictly applied, as there may be some varieties of service for which rates fully compensatory would impose an unfair burden upon consumers, and it may be in the general interest to furnish a certain service even at a loss, to be made up through what might be otherwise excessive earnings out of other classes of service.

The commission must consider the operations of a public

utility as a whole and determine as a whole the cost of service rendered and what rates as a whole should provide adequate returns.

It has been the prevailing holding of the courts that a commission is not to regard itself as the manager of a public utility and that questions of financial and operating policy must be left largely to the judgment of private management. This doctrine has relieved the commissions of considerable responsibility in the matter of criticizing operating expenses and as a result the lesser part of the labors of state commissions are devoted to the matter of operating expenses. The most controversial issues which have occupied the major energies of the commissions are those concerned with determining the capital charges which must be added to operating expenses in order to find the total amount of revenue which a utility may be authorized to collect from the public in the form of rates. Therefore, the work of the state commissions in establishing capital costs is worthy of the primary and major considerations in this chapter.

Monopoly Character of Utilities.—Ever since public regulation of public utilities began there has been a fundamental disagreement between those who sought to protect the public interest in reasonable rates and those who sought to protect the private interests in obtaining compensation for the use of property devoted to public service. It has been evident from the outset that the theories of private business could not be applied to what is essentially public business, even though privately owned and operated. The purpose of using property in a private enterprise is to make as large a profit as possible out of such use. The right to make such a profit is generally regarded as one of the rights of private property, protected by constitutional guaranties. So long as there is competition in making a product or furnishing a service, the force of com-

petition will tend to keep the charge for the product or the service somewhere near the cost of production. This conclusion is quite generally accepted and repeatedly affirmed by political economists.

But when the production of an article or a service becomes monopolized, and there is no force of competition to hold down prices, the tendency always appears to increase prices to the standard of "what the traffic will bear." A business able to monopolize supply cannot raise prices indefinitely without diminishing the demand to the point where the net profits are less than they would be with a larger demand and a smaller profit per unit. It was the theory of many of our railroad operators that regulatory bodies should permit the railroads and other public utilities to charge what the traffic would bear, relying on their self-interest to promote the maximum of the service in order to obtain a maximum profit.

It soon became evident that regulation upon this theory would be merely regulation in private interest to relieve utilities of rate reductions forced by competition, and to leave them free to make a maximum profit out of operations.

Search for Rate-Making Standards.—When state commissions were created and given the power of rate regulation it became evident that some standard for limiting the profits of the property owners must be established. Standards should have been worked out by legislative enactment, determining the bases upon which rates should be held reasonable or unreasonable. Unfortunately they have been worked out in the courts through their decisions upon appeals to them to set aside rates fixed by statute or by the orders of commissions. The question presented to the courts has been: How far may earning capacity be limited without a taking of private property for public use without just compensation; hence, what earning capacity must be allowed to a property devoted to public serv-

ice? For a time there was a tendency to find the investment in the property and to allow a fair return upon that investment. But often investments had been made foolishly or dishonestly and the question involved unfortunately came to be discussed as, "What is the value of this property?" By this question, as early propounded, it was clearly intended to inquire into what the property represented as a private contribution to public service. In the pursuit of an answer to this question has been developed the present confused law of the "valuation" of public utilities.

Conflict of Court Opinion on Valuation.—The greater part of the time of public utility commissions is taken up with the effort to value public utility properties. The value of a property, using the word "value" in its ordinary sense, is, however, determined by its earning capacity. The search for the value of a public utility property is not an effort to determine what its earning capacity *is*, but what its earning capacity *should be*.

> The value of property, generally speaking, is determined by its productiveness, the profits which its use brings to the owner.—Monongahela Case, 148 U. S. 328.
>
> But the value of property results from the use to which it is put and varies with the profitableness of that use, present and prospective, actual and anticipated. There is no pecuniary value outside of that which results from such use.—C. C. C. & St. L. Railway Co. *v.* Backus, 154 U. S. 439, 445.

Clearly, pecuniary value, as described in the last quotation, cannot be the *basis* for rates, as it is the *result* of rates; and the purpose of fixing rates, in the language of the Supreme Court of Illinois, is to secure "such a rate as might properly be supposed to result from free competition, if free competition were possible." (Utilities Commission *v.* Springfield Gas. Co., 291 Ill. 209.) It appears, therefore, that the task of the state

commissions in valuing public utility properties is really to find the capital cost of furnishing the service, because the economists generally agree that in a state of free competition there is a persistent tendency of prices to equal the expense of production. Therefore, the actual capital cost of furnishing public utility service, plus operating cost, should furnish the standard for a reasonable rate.

The capital cost is the wage which must be paid for the capital employed. The "value" of a public utility property is, therefore, to be determined as the amount of capital which the property represents, and the capital cost as the fair return upon that amount.

Here, however, we find a conflict in point of view which has forced the commissions to consider a great many inconsistent facts in valuing a public utility. If the capital to be rewarded is considered as money invested, the only purpose of a valuation is to determine what the property represents as a money contribution of investors. This idea is expressed by Mr. Justice Brandeis in the Southwestern Bell Telephone case in the following language: "The thing devoted by the investor to the public use is not specific property, tangible or intangible, but capital embarked in the enterprise." Representatives of utilities have argued, however, that the thing devoted by the investor is the existing property, and that that property represents, as "capital," the money cost of reproducing it.

The conflict of court opinions regarding the proper method for valuing a public utility property is discussed more fully elsewhere, but in order to understand the work of the state commissions it is necessary to bear in mind that they have not had presented to them any legislative standards for valuing such a property (with a few exceptions) and that in their efforts they are required by the decisions of the courts to consider inconsistent and confusing data and then to arrive at a judgment, which is called a finding of what the value of the

property is, but which is in fact a finding of what in their opinion (endeavoring to reconcile public and private interests) the value of the property *should be*. The factors generally considered will be briefly described. How these factors are utilized in fixing a "value" is usually carefully concealed in the opinions of the commissions. Some commissions are frank enough to state that no one knows. (Just as no one knows how a coin happens to fall heads or tails!)

1. Original, Actual or Historical Cost.—In order to determine the amount of private contributions of capital which have been necessary to produce the present property of the utility, the commission may attempt to learn from records either what the property has actually cost its owners, or in the absence of adequate records, what it probably cost the owners or their predecessors. "Actual" cost is usually understood to be found from accounting records, whereas "original" or "historical" cost may be in part, or even entirely, estimated. These studies, wherein both accounting and engineering reports may be utilized, are directed toward the goal of ascertaining the money investment. It is often necessary to qualify the results by a consideration of the prudence or honesty of the investment. For example, a utility corporation may have paid a contractor $1,000,000 to build a gas plant or a line of railroad and a portion of the expenditure may have been wastefully made; or the contractor may have been merely a medium whereby the promoters charged 25 to 50 per cent more for the property than it actually cost to build, the use of the contractor having been merely a means for enriching the promoters. This check on improvident or dishonest expenditures may be made by estimating the cost of reproducing the property under the original conditions of construction. This use of reproduction cost is often confused with the theoretical reproduction cost of the property set up for the purpose of supporting the claim of "present value."

2. Reproduction Cost.—The cost of reproducing the property at a date later than its original construction is sought, not for the purpose of showing the investment made in the actual construction of the property, but for the purpose of showing the investment which would be necessary if at a later date it became necessary to reproduce the existing property under changed conditions and a new level of prices for material and labor. The commissions have not generally regarded such reproduction cost as furnishing absolute proof of "present value," although that is the common contention of public utility representatives. Nor has this use of reproduction cost ever been approved by the Supreme Court of the United States, as shown clearly by the dissenting opinion of Mr. Justice McKenna in the Georgia Power case. The commissions working at first hand with the evidence of reproduction cost have realized the highly theoretical character of such evidence, and a typical comment upon it may well be quoted from a Michigan case, in re Michigan State Telephone Co., 1921 C. P. U. R., 545, 554.

> This method (reproduction at prices prevailing at time of valuation) of determining value usually includes percentages for engineering services never rendered, hypothetical efficiency of unknown labor, conjectural depreciation, opinion as to the condition of property, the supposed action of the elements; and, of course, its correctness depends upon whether superintendence was or would be wise or foolish; the investment improvident or frugal. It is based upon prophecy instead of reality, and depends so much upon half truths that it bears only a remote resemblance to fact, and rises at best only to the plane of a dignified guess.

Also, the commissions, dealing intimately with the problem of rate regulation, have realized better than most of the courts the soundness of the proposition long ago laid down by the Supreme Court of the United States that "never was it held that the cost of a thing is the test of its value" (C. C. C. & St. L.

Railway *v.* Backus, 154 U. S. 439, 445). The cost may show investment, but it certainly does not prove value; and reproduction cost does not exhibit either actual investment or any which would necessarily be required, even to reproduce the service. It is poor evidence of "investment" under any definition of that word.

3. Going Concern Value.—The decisions of the courts have also compelled the commissions to take into consideration in valuing the property of utilities not merely the value of the separate items of physical property, but also the value of the physical properties linked together and operating as a going concern. It has been customary in determining both original cost and reproduction cost to include sums representing the overhead expense involved in the construction of a public utility plant, covering such items as, interest during construction, engineering and legal expenses and other expenditures necessary to produce the entire property to the day of operation. But it has been urged that further expenditures are required. The cost of acquiring customers and the general development of the business are sometimes included within the term "going value," and sometimes brought forth under the designation of "development expense." So far as additional expenditures are necessary to produce a going concern, that is, a plant in operation, they should be included and usually are included in any proper set-up of either original cost or reproduction cost. The question of the acquisition of customers may be dealt with under the following head:

4. Development Expense, and Early Losses.—There are two claims frequently advanced: (a) the cost of acquiring customers, (b) the losses in capital return suffered by the company during its early days of operation. If a commission is seeking to ascertain original cost, these expenses may be investigated as questions of fact. In many instances the develop-

ment of a public utility enterprise exhibits a lagging behind demand rather than a proceeding in advance of demand and there will be no showing of actual losses, many companies having been prosperous from the start. It is commonly proved by records, where records are available, that the cost of acquiring customers and developing business has been charged into operating expense and therefore, if there has been no period of loss of fair return on investment, there is no plausible basis for capitalizing this so-called development expense. There has always been some question as to the propriety of including early losses in the capital account although the general tendency of the commissions has been to allow a utility in some manner to recoup itself for such losses when shown to have been an unavoidable cost of developing the enterprise.

In estimating reproduction cost the idea of development expense or going concern value opens up a fruitful field for mental gymnastics by public utility experts and the commissions have been required to consider, in valuing public utility properties, highly fantastic computations whereby imaginative engineers and accountants have sought to obtain allowances for enormous sums representing contributions of capital which were never made and never would be made in the development of a public utility.

5. Market Value of Bonds and Stocks.—The Supreme Court of the United States in Smyth *v.* Ames stated that the amount and market value of bonds and stocks should be considered in ascertaining the value of the property. Commissions are sometimes required by law to report these facts and sometimes do so of their own volition, but it cannot be stated that the market values of securities have any particular influence with commissions in fixing the value of a property, although it is sometimes apparent that the amount of outstanding securities has had an unfortunate influence.

6. Operating Expenses.—The opinion in Smyth *v.* Ames requires consideration in valuing a property of the "sum required to meet operating expenses." Here again the commissions, while always considering operating expenses in determining reasonable rates, have apparently given little consideration to these expenses in fixing the value of the property. There are instances where commissions have considered the operating expenses when passing upon the rate of return, on the ground that a utility of low operating expense compared to similar utilities might be entitled to a high rate of return, as an efficient enterprise; and that on the other hand a utility of high operating expense should be given a low rate of return. This doctrine has not had wide sanction.

It may be suggested, however, that the commissions have given far less attention than they should to operating expenses in determining the value of properties and fixing the proper rate of return. Even if the value of a property is to be regarded largely as a statement of investment, a consideration of whether operating expenses are high or low, compared with those of other utilities, would indicate partially whether the investment had been wisely or unwisely made in the properties. It would seem to be not an unreasonable doctrine that persons who construct an efficient, high-grade public utility property, with a lower than average cost of operation, resulting from wise investment and good management, might well be entitled to a larger than average return. It would probably be better public policy to increase the return itself, which would thereby increase the *pecuniary* "value" of the property, rather than to increase the *fiat* "value" set by the commission as a means of indirectly increasing the profits of the owners.

7. Taxation Values.—There have been numerous efforts made to obtain consideration by regulatory commissions of the value set upon public utility properties for taxation purposes

in connection with fixing the values of such properties as the basis for rates. The fact that assessed values of properties are commonly recognized to bear little relationship to their real values has prevented much practical use of such taxation values. A serious question arises, however, as to the consistency of giving a piece of land, for example, one value for taxation purposes and another value for rate-making purposes. Those who believe in the investment theory and therefore urge that the investment in real estate devoted to public use represents its value for rate making purposes and that public utilities should not be permitted to capitalize the unearned increment, might well be consistent in urging that the utilities should be taxed on the same basis.

However, there is a distinction between the two values which must be borne in mind. A finding of value for rate making purposes is a statement of the amount of capital upon which a utility is entitled to earn a fair return. A statement of value for taxation purposes is, on the other hand, intended to be a statement of true pecuniary value, that is, what, on the basis of actual earning capacity, the value of the property is. The fact that these two values are not necessarily the same shows how unfortunate it is that the commissions, under direction of the courts, are required to find a "value" as the basis for rates, instead of being required, as they should be, to ascertain the reasonable capital cost of furnishing the service.

Rate of Return.—Assuming that a commission has found the value of a public utility property, another important duty of the commission is to find what rate of return should be allowed. To make this finding the commissions usually receive evidence concerning the rate of return necessary to obtain money for enterprises of similar risk. This evidence is usually based on the assumption that what is to be found is the per cent

necessary to obtain the investment of capital in the stock of a public utility. There is customarily little attention paid to the fact that a considerable portion of the money invested in public utility securities is represented by bonds.

"About 75 per cent of the capital invested in utilities is represented by bonds," wrote Mr. Justice Brandeis in the Southwestern Bell case. Probably emphasis should be laid on the words "capital invested," although the amount of railroad bonds, for example, is largely in excess even of the total face value of railroad stock. But such a large percentage of stock issued by railroads and other utilities has represented no investment that, while the total par value of bonds will not equal 75 per cent of the total par value of outstanding securities, it may well represent 75 per cent of the *capital invested*. The present railroad capitalization is divided approximately as follows: funded debt, $11,500,000,000; stock, $9,000,000,000, of which $2,000,000,000 is preferred stock. Thus about $13,500,000,000 out of $20,500,000,000 of securities carry a fixed return, or nearly two-thirds. The holders of the remaining one-third of securities would reap all the benefits of any return fixed in excess of the rate of interest on bonds, although a large percentage of these securities represents no investment whatsoever.

It is the contention of public utility representatives that the owners should receive a return on the value of their property and that it is not relevant to consider whether the owners of the property have borrowed from 50 to 75 per cent of the investment, on the theory that the owners have made the investment, even though they borrowed the funds. This is a case where theory and fact are in considerable conflict. In a real sense the owners of public utility properties are largely bond holders. It is not expected that the borrowed money will be paid back, bonds being commonly refunded when they become due. The true cost of obtaining capital for a public utility enterprise would be ascertained by finding the cost of

money obtained on bonds and the cost of money obtained through stock issues.

The fixing of a rate of return on the basis of assuming that the value of the property represents the investment of the stockholders, on which they are entitled to the current rate of return for similar investments represented by stock, permits an allowance by commissions of what is apparently a reasonable rate of return, but which, as a matter of fact, translated into the rate of return which the stockholders will actually enjoy, is much larger than commonly would be approved by the public. A very good example of this is shown in the provision in the Transportation Act requiring the Interstate Commerce Commission to allow the railroads to earn from 5½ to 6 per cent on the value of their properties, the result being that certain railroads as a matter of law will be permitted to earn from 15 to 20 per cent on their stock. If such a provision were clearly made in the law it would arouse vigorous opposition.

Operating Expenses.—It would be impossible, within reasonable limits, to detail all the questions which have confronted commissions in passing on the operating expenses of utilities. Usually the question of the reasonableness of expenditures is decided not on the basis of what they ought to be, but on the basis of what they probably will be. For example, if a gas plant is utilizing an excessive amount of coal, or coke, or oil in gas production, as indicated by the amounts used in other and more efficiently operated plants, the commission probably will estimate operating expenses on the basis of reasonable production costs, not condemning the actual production costs as too high to be allowed, but utilizing the circumlocution of setting up what reasonable operating expenses probably will be. In this manner the commission can exert considerable pressure upon an inefficiently operated company to improve its methods. But it is only rarely, when a straight issue is pre-

sented, that actual operating expenses are disallowed on the basis that they are unreasonably high.

Income Taxes.—Since the coming of federal income taxes there has been an effort on the part of many utilities to obtain an inclusion of such taxes in operating expenses, or at least the effort has been made to deduct in some manner the amount of income taxes from the net operating income. Under a holding of the Supreme Court of the United States in the Georgia Power case it appears that in the future commissions will be required to deduct the federal corporate income tax before finding the probable net income, but on the other hand, the court holds that "since dividends from the corporation are not included in the income on which the normal federal tax is payable by stockholders, the tax exemption is in effect an additional return on the investment."

Depreciation.—One of the questions most hotly litigated before the commissions is: What is a proper allowance for accrued depreciation in valuing a property and for annual depreciation in finding the costs of operation? It has been the tendency of public utilities to include all replacements of property, so far as possible, in operating expenses and to claim that a property which is operating efficiently should not be regarded as depreciated at all, so that in a valuation no deduction for depreciation should be made from the cost of the property, whether determined by original cost or by reproduction cost. Yet it is also a fact that the commissions generally approve, and the utilities generally demand, an annual depreciation allowance in order to provide for large replacements necessitated either through obsolescence or through the wearing out of large units of property.

Whether "investments" or so-called "replacement cost" is made the basis for valuing a public utility property, it seems

necessary to deduct actual accrued depreciation if a commission is to deal with facts. A lead pencil which has been sharpened down to half its length retains its writing efficiency, but the investment in the pencil has been half used up and the value of the pencil has certainly been diminished 50 per cent. To deny the fact of depreciation in finding "value," upon whatsoever theory, seems to be quite unwarranted. Apparently only one commission has ever approved of the "no depreciation" contention of the utilities. A great many commissions have given little or no attention to depreciation in setting up original cost figures, but practically all commissions have deducted depreciation from reproduction cost estimates.

Municipal Contracts.—One question which has required much attention from the commissions and the courts has arisen out of municipal ordinances wherein a rate for service has been fixed as a condition of the franchise granted. During the 20 or 30 years prior to the world war repeated efforts were made to reduce rates which had been fixed in franchise ordinances and the utilities were able quite generally to resist such rate reductions on the ground that they would invade constitutional rights of contract which could not be impaired. Against this contention it was urged that the police power of the state could not be contracted away and that unless a contract right to charge a specific rate had been clearly granted and a municipality had been clearly authorized to make such a grant for a limited period, the state was at liberty to exercise the police power to reduce rates, even though they had been fixed by an ordinance contract.

With increasing costs of operation, which developed slowly, prior to, and then very rapidly during, the war, the public and private interest shifted and the utilities assailed the limitations of their franchises and demanded increases above franchise rates. In most instances they were successful in

obtaining from the courts decisions to the effect that the police power of the state could not be bartered away and that the state commissions were at liberty to increase rates, despite the provisions of municipal ordinances! The period during which the commissions were besieged by the utilities to increase rates, while cities were opposing such increases on the basis of ordinance contracts, was a most unhappy one for the state commissions.

It is now generally accepted that the commissions are free to increase or decrease rates, notwithstanding limitations fixed in franchise ordinances. The tendency of the commissions in general has been to destroy municipal control over public utilities, just as the tendency of the federal laws has been to destroy state control over railroads. Against these tendencies the advocates of "home rule" and decentralization of political power have waged continuous war. The state commissions, on the one hand destroying the powers of municipalities, and on the other hand fighting the destruction of their own powers by the federal government, have been found battling first on one side and then on the other, in the struggle to maintain local authority against the constant pressure of the great utility interests to have their controversies with the public determined as far as possible from the immediate locality which they serve.

Field of Commission Activity.—There are so many questions presented to the state commissions which it has been impossible to cover in this brief survey that it cannot be claimed that a comprehensive picture of the activities of the state commissions has been given. In connection with the railroads they still exercise considerable power, despite the supreme power of the Interstate Commerce Commission. Questions involving grade crossings, locations of stations, service furnished, discriminations practiced and many others

of like importance have not been here discussed. With regard to street railways, bus lines, gas, electric light and water plants, they exercise much authority. It is customarily required that certificates from public untility commissions must be obtained for the establishment of a public service or for an extension thereof; and that security issues must be approved.

Even an adequate index of the controversial issues that these commissions must decide would cover many pages. The following outline is not offered as such an index but merely as suggestive of the wide field of commission activity:

I. Deciding Jurisdictional Questions

II. Making Valuations:

1. For rate making
2. For security issues
3. For purposes of sale or lease
4. For municipal acquisition

Measures used [principally (1) and (2)]:

1. Original cost; historical cost; investment; book cost
2. Reproduction cost and reproduction cost less depreciation—at various price levels
3. Sale price, market value or market price of outstanding securities
4. Taxation value

Diminished by:

Accrued depreciation

Increased by:

Working capital

Supplemented by:

1. Going concern value
2. Development expense
3. Early losses
4. Other "intangibles"

Involving segregation of:

1. Property not used or useful
2. Property not owned
3. Property donated
4. Proceeds of donations or surplus earnings

III. Reviewing Operating Expenses, involving such questions as:

1. Comparison to determine reasonableness
2. Costs of materials and supplies
3. Salaries, wages, engineering and management charges
4. Operating efficiency and economy
5. Amortization of the value of discarded property, and of losses
6. Depreciation charges
7. Betterments, replacements and maintenance
8. Items possibly chargeable to capital account
9. Protection against losses; insurance
10. Uncollectible accounts
11. Miscellaneous issues concerning proper operation and accounting

IV. Finding a Reasonable Return:

1. Factors to be considered:
   (a) Value of and demand for the service
   (b) Cost of service
   (c) Character of service
   (d) Economic conditions; character of locality
   (e) Risks of enterprise
   (f) Attraction of capital and maintenance of credit; cost of money
   (g) Past and future earnings or deficits
   (h) Efficiency of management
2. Amount utility is entitled to earn
3. Amount utility may be able to earn
4. Reasonableness of return as a whole
5. Reasonableness of return as to particular items.

V. Fixing Reasonable Rates:

1. Factors to be considered:
   (a) Comparison of rates
   (b) Value of and demand for service
   (c) Cost of service
   (d) Character of service
   (e) Ability of consumer to pay

(f) Economic conditions; location of plant; service saturation
(g) Promotion of business
(h) Effect of competition
(i) Franchise or contract obligations
(j) Resultant return to owners

2. Conflicting powers of municipalities
3. Kinds and classes of rates

VI. Authorizing Security Issues:

1. Purpose—Commonly for additions or refunding, but questions arise regarding:
   (a) Consolidation, sale or lease
   (b) Payment of bond discount
   (c) Payment for replacements
   (d) Payment of interest, taxes and dividends where earned income not available
   (e) Financing in advance of needs
   (f) Payment of operating expenses
2. Amount:
   (a) Value of property covered
   (b) Proportion of stocks and bonds
   (c) Reorganization needs
3. Sale price
4. Stock dividends
5. Interest rate
6. Bond discount
7. Guaranty of bonds of other companies

VII. Authorizing Public Service Operations:

1. Inaugurating a service
2. Extending a service
3. Approving a franchise
4. Certificates of convenience and necessity
5. Approving contracts between utilities

VIII. Accounting Questions:

1. Uniform systems
2. Depreciation accounting
3. Requirements of a proper accounting system

IX. Discrimination Questions:

1. As to rates:
   (a) Concessions to particular classes of consumers
   (b) Step rates as discrimination
   (c) As between localities
2. As to service
3. As against other utilities

Difficulty of Establishing Scientific Price-Fixing Standards.—It has been the purpose of this chapter to indicate something of the character, the complexity and the importance of the issues with which Public Service Commissions deal, particularly in the all-important matter of rate making. Especially is it desirable to indicate the unscientific bases upon which rates are now fixed. It may be worth while, as a warning to those who seek through public regulation to alleviate the evils which arise from monopolistic control of the furnishing of a service or a product of common necessity, to point out that in the oldest field of public regulation of business, regulation of public utility service, it has been impossible as yet to establish any scientific standards of price-fixing. Ethical, social and economic issues are hopelessly jumbled in the arguments before, and in the opinions of, the commissions and courts. It may not be irrelevant to suggest in conclusion that until some standards are commonly accepted for the determination of what is a "fair" compensation for the service of a human being and what is a "fair" basis for the exchange of commodities, it will be very difficult to obtain through public regulation any fixing of rates, which will be accepted as "fair" alike by the private owners of public utilities and by the users of public utility services.

CHAPTER VI

SERVICE STANDARDS

Importance of Service Standards.—To secure and ensure good service is a prime purpose of utility regulation. Rate regulation which is at times a more spectacular feature of regulation is necessarily of secondary importance, for a proper rate cannot be set unless the kind and quality of service has first been determined. Moreover, the consumer is generally willing to pay for good service a sum that he thinks is perhaps too high. He is always unhappy in paying a price, however low, for a service that is not satisfactory.

Up to the present more time and money has been spent upon rate base researches than upon anything else. The quality of service performed and the operation and maintenance costs proper for performing it have received far less attention than they merit. Hence the importance at the present time of bringing up service standards to the level where they belong. It is not sufficient merely to formulate and publish the revised standards. They must be enforced by sufficient inspection. Adequate standards are rarely static. They are profitably subject to constant study and change.

Mere revision of present standards may not suffice, for these are all based upon the condition in which a utility produces and distributes its commodity or service to a group of users who are its customers, usually obtained within a relatively small geographical area. Future conditions may easily become quite different from those which obtain at present. It is conceivable, for instance, that we may have giant power producing stations delivering energy to transmission companies and these in turn supplying energy to the present utilities who

now not only do their own generating but do it within their own territories. These last mentioned utility companies may in the future confine themselves to distributing energy both as retailers and wholesalers. It is obvious that to meet such conditions we shall have to evolve standards varying considerably from what we now have. Again, conservation in the use of natural resources and regulations covering the same may in the future give us far more concern than the rate base does today.

Progress in the setting of standards has been retarded because of a desire on the part of the commissions to avoid assuming the responsibilities inherent in management. It has sometimes been assumed that any move in the direction of standardizing service would inevitably lead to such an assumption of responsibility for results as to take away from management its chief incentive for efficiency and economy. Commissioners certainly must be watchful lest they handicap management with such detailed injunctions as will hinder rather than further effective and economical service.

On the other hand, if regulation is to put itself in a position to reward efficiency and penalize the lack of it, reasonably specific standards of performance—doubtless increasingly specific—are essential. To recognize that the technique of accomplishing this without unnecessarily burdening management is as yet undeveloped is just another way of saying that regulation is in its infancy.

Section A

SERVICE STANDARDS FOR ELECTRIC LIGHT AND POWER COMPANIES

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Commission Rules and Orders.—As early as the beginning of 1916, when the Utilities Magazine of Philadelphia published

the first compilation of electric service standards, 10 of the commissions had published rules prescribing standards concerning certain items of electric service. On July 28, the National Bureau of Standards issued its exceedingly valuable "Circular No. 56—Standards of Electric Service," containing the standards of the Commission and some suggestions for suitable standards. These two publications much facilitated the work of studying and preparing such rules, so that by the latter part of the year 8 other commissions had followed suit. At the present date 24 have published such rules in pamphlet form, several more expect to do so soon, while others have prescribed standards concerning one or more items of service by special orders or bulletins. The Bureau of Standards has recently revised and republished Circular No. 56 and it now forms a most valuable compendium upon this subject.

Most of these rules or orders fall under the following principal headings:

1. Furnishing and Discontinuing Service:
   - Conditions under which service may be secured
   - Aid to customer in selecting appliances best suited to service
   - Extensions and service connections
   - Discontinuance for non-payment of bills or fraud by customer
2. Efficiency of Service:
   - Frequency requirements
   - Voltage fluctuations allowable
   - Voltage surveys over system
3. Measurement of Service:
   - Meters—Accuracy of
   - " —Location of
   - " —Testing of
4. Payment for Service:
   - Bills, contents and form
   - Deposits to secure payment

Refunds for deposits or errors

5. Publicity Required of Utility:
   - Complaints, acknowledgment, investigation and report of
   - Information to be given to customers
   - Practice rules to be filed
   - Reports
6. Reliability of Service:
   - Interruptions
   - Maintenance of plant and system
   - Station records
7. Safety:
   - Accidents
   - Construction rules
   - Inspection
   - Maintenance
   - Operation

Opportunities for Improvement.—The writer has made a "digest" of these rules so set up as to indicate readily the consensus or divergence, as the case may be, of the different commissions, concerning various points. This digest has been filed, with other material bearing on this report, in the state library at Harrisburg.

He has picked out and enumerated a number of the salient points in connection with these service standards, and has then pointed out what in his opinion are the opportunities and need for improvement. If in so doing he has stressed the viewpoint and protection of the consumer somewhat more than that of the utilities, this is because any revision of standards will of course be considered at public hearings at which the viewpoint of the utilities will be presented far better than the author could possibly do.

Certain ideas have also been suggested in the text, not

because they are the settled conviction of the author, but because he believes they should not be overlooked in a broad consideration. One example of this is the idea of a possible preferential rate to farmers.

In the actual formulation of a new or revised set of service standards, the most careful consideration would, of course, be given to the work of the National Bureau of Standards as set forth more particularly in its Circular No. 56. The National Electrical Safety Code now being revised should of course not be overlooked.

The service standards of several states were set up several years ago when there were few others in existence from which to derive experience or suggestion. In recent years there have been considerable advances in electrical generation and distribution, a tremendous addition to the experience of utility regulation and to the knowledge of what constitutes good service. Regulations which may have been proposed in the earlier years and which the commissions hesitated to adopt because of uncertainty as to their satisfactory working may now be safely put in force. The consumer public appreciates and demands better service than it did at that time. The utilities can now easily achieve what was then most difficult. The standards of many states, therefore, need revision and have needed it for some time. Some of the more salient improvements needed are indicated below.

Furnishing and Discontinuing Service.—

General Information.—In general the customer's contact with the utility begins when he desires electric light or power, and the utility should have available to everyone the uniform and non-discriminatory rules under which he will be served. The average customer needs assistance in choosing the rate most economical for him and in securing the fixtures,

lamps, motors and appliances best adapted for the electric service to be furnished him.

Fourteen commissions require in their standards that the utilities shall furnish this knowledge and assistance to their customers. West Virginia further requires that the following shall be kept in view of and accessible to the public in the office of each utility: Its rate schedule; copies of application and contract forms; rules and regulations; state law governing utilities and Public Service Commission rules governing utilities in the state. The Bureau of Standards recommends everything required by West Virginia except the copy of the state law.

Service Connections.—Where a utility had street mains running past the premises of a prospective customer, it had been generally customary prior to the world war for the utility to install the wires connecting the mains with the customers' premises together with meters, protective devices and transformers, if required, at its expense. Several commissions require this—California, Illinois, Massachusetts (in settled districts), and West Virginia. In suburban districts with extensive private grounds, the cost has led many utilities to make the customer pay for everything on his premises except the meter and transformer. In the District of Columbia this is the rule for all service connections, and this policy has much to commend it.

Other utilities limit the cost of service connection which will be made free. For example, the Philadelphia Electric Company tariff states it will make connections free up to a cost of $25, but beyond that the matter is subject to special negotiations, although the Public Service Commission of Pennsylvania, in Elias Lovell *v.* Eastern Pennsylvania Light, Heat and Power Co., order 913 dated December 21, 1920, states, "we find that the respondent is not justified in demanding that

a prospective consumer supply capital for the labor and material required to make a service extension."

All these varying practices introduce difficulties in appraisals as well as causes of dispute between the utilities and their customers, and it seems evident that they should be standardized and enforced by the various commissions.

Extensions of Mains.—Theoretically it is perhaps the duty of a utility to make extensions so as to give service to all applicants. Practically, after the beginning of the World War, few of them could get the needed capital. Hence, many applicants have been required to advance and some to actually make a present to utilities of a part or all of the cost of the extensions necessary to supply them, no matter how important and profitable their load. Some have been or will be repaid by the utilities *with* interest, more, *without*. Some will never be wholly repaid. Apart from the relative discrimination, it is probable that the utility will have included in its fair value at the next rate case all of this property, part of which was furnished by some of its customers. As long as the return is based on fair value, it will earn, or rather secure, something to which it is not entitled.

There is another class of customers who are required to advance or furnish the capital for making extensions to them, viz., those whose premises are so distant from existing mains that the utility considers that these customers will not be *sufficiently* profitable to warrant making the extension to them. They may be profitable, but not so profitable as some other customers who can be supplied at the same capital expenditure, or they may be actually unprofitable taken by themselves. At present in several states there are no standards set up to cover these cases, and the consumer negotiates with the utility, almost always at a disadvantage in resources and technical knowledge. Moreover, securing service is a relatively important thing to

him, and to obtain it he will make sacrifices beyond what his sense of justice approves.

On the other hand, to the utility his business is a small thing and often considered with indifference to serving him promptly or even serving him at all. The consumer can, of course, appeal to the commission which will make a special consideration of this case. He is deterred, however, by the cost and delay, by his uncertainty of the outcome in the absence of knowledge of the principles which will guide the commission's decision, and by his fear that in incurring the enmity of the utility he would never secure service in the future, if the decision of the commission should be against him.

Nine commissions have formulated and published such principles for urban districts. Five others have their formulated policies but have not yet published them as standards. In general, these require the utility to make extensions at its own expense up to a certain cost or a certain percentage of annual revenue to be expected. Extensions beyond the free limits are to be paid for by the customer, who will receive refunds when other customers use the extension within a certain number of years. Three commissions require the refund whether or not additional customers use the extension. The utility is protected by the right to ask for a special consideration by the commission in any special case which it feels would impose an undue hardship.

Several commissions, on the other hand, have issued no rules, and the language of some of their orders apparently indicates doubt concerning the feasibility of such rules and implies the necessity of considering each case as it comes up.

A policy of this kind must throw upon the commission a large amount of detail work which should be avoided if possible so as to increase the time available for broader and more important matters. The action of fourteen other commissions

cited above, while falling short of proof, is strong evidence of the need and possibility of rules to cover extensions.

With the advantage of the already published rules, it would now seem feasible for the various commissions to formulate and publish satisfactory general rules, with provision for appeals in more complicated cases, which would in the future save much time and expense to the commission, the utilities and the consumers.

Extensions in Rural Districts.—Extensions in rural districts present a much more difficult and perhaps even a more pressing problem. While much attention has been given recently to this subject by utilities, utility organizations and public service commissions, there is a wide divergence of policy concerning them. The Kansas commission, for example, requires the utilities to make all service connections without any charge to the consumer unless it can be conclusively shown that such extensions are unreasonable. The Hydro Electric Commission of Toronto finances all of its extensions to farmers. Wisconsin and Ohio, on the other hand, require the consumer to pay the cost of line extension, and further, to pay urban rates plus certain operation costs and the estimated extra cost of maintenance for the longer rural lines.

It may be as the utilities claim, that it costs the utilities more to get ready to supply electric current to many of their rural customers than to average urban customers by reason of greater lengths of distribution lines. Yet it does not necessarily follow that it is desirable to make the consumer supply the capital for the needed extension. There are good arguments why the utility should supply capital for its entire system or at least that part which is on public highways. There are objections to utilities asking a part of their customers to supply a portion of the capital. If it is possible to exclude customers' donations from the rate base, then the chief objection to these

donations disappears. As it did not seem possible to do this in Pennsylvania, Mr. C. J. Joyce, formerly Chief of the Bureau of Accounts of the state's Public Service Commission of Pennsylvania, has made the suggestion that customers' donations be treated as income. They will then go to swell the surplus which if too large will naturally lead to a rate revision.

It is exceedingly important to arrive at a standard policy in regard to rural extensions, and it would be of great advantage to the central station industry if the various commissions and the public could agree upon some standard policy.

Discontinuance of Current.—Fraud on the part of the consumer or dangerous conditions are sufficient warrant for discontinuance without notice. Non-payment of bills is not, for the customer may believe that the bill is unjust. The utility should be allowed to require a deposit from consumers of doubtful credit, paying interest upon the deposit, and to charge an extra sum for delayed payments. Then it should collect its bills like other business houses without using pressure or a threat to cut off current—a threat that has been sometimes used to drive the customer into signing a contract which he deemed inequitable. If it intends to discontinue service, adequate notice concerning a definite future date should be given, allowing time enough for investigating disputed bills. Provision should be made for the submission of disputed bills to the commission, and such submission should act as a stay against discontinuance of service until after the commission's decision.

Efficiency and Quality of Service.—

Lamps.—Lamps are quite generally sold by utilities to their customers at prices lower than can be obtained in the open market, and some sizes are replaced free of charge if originally

purchased of the utility. It has been asserted that these lamps are not of the first grade in some instances, and in such cases the saving to the customer is more apparent than real. Six commissions have dealt with the situation by a special rule requiring that the cost per candle power of such lamps shall not exceed the cost per candle power of similar lamps when bought in the open market, and consumers of other states should be similarly safeguarded.

Voltage Regulation and Surveys.—Fluctuations in voltage are objectionable, causing variation in brilliancy of lamps and changes in motor speeds, and the commissions have been forced to prescribe limits of voltage variation. As the fluctuations on lighting circuits are more objectionable than on power circuits, the requirements are more stringent for the former.

The most severe limits prescribed for lighting are not over 3 per cent above or below standard voltage during lighting hours, which is prescribed by the Public Service Commission of District of Columbia, while for power the same commission permits a variation of 10 per cent. Most commissions permit a variation of this magnitude on power circuits. Ten commissions require the utilities to make voltage surveys with sufficient frequency to satisfy the commissions concerning compliance with their requirements, and six commissions require continuous graphic voltmeter records for each plant, open to the inspection of the public.

Measurement of Service.—

Meters.—Meters have always been regarded with distrust by consumers and it is to be feared that they always will be. Their accuracy is important to utility and consumer alike, and among the earliest efforts at regulation were rules concerning

the testing of meters and the allowable maximum errors. The principal tests upon meters are to determine:

1. If they register at no load—called "creeping."
2. Per cent variation from accuracy at light load and full load.
3. Correctness of meter constant.

The most stringent requirements are those of District of Columbia, Maryland, New York and Wisconsin, viz., not over 1 per cent error at light and full loads.

Periodic tests are required by most commissions, to be made in each case by the company itself, the length of the period varying according to the size and type of meter, from every 48 months (required by Illinois, Oklahoma and Michigan) for meters up to 25 amperes to every 6 months for large meters (required by Oregon).

The variation in requirements of the various states is not creditable and is becoming an increasing annoyance to utilities operating in more than one state, a condition that is becoming more and more frequent.

Provision should be made for teaching any consumer how to read his meter and for so marking the meter that its readings can be translated into units of power by the customer. Four commissions require this. Nineteen commissions provide for testing meters upon complaint, the fee to be paid by the utility if the meter is found inaccurate and by the consumer if not.

Meters Other Than Kilowatt Hour Meters.—Hitherto practically all customers' meters have been such as measure kilowatt hours. In the future other measurements will be made of consumers' loads, especially in the case of power loads where measurements will be made of maximum demand, power factor, voltage and possibly other quantities which are concerned in making up the consumer's bill. There-

fore, service standards should provide rules and standards of accuracy for these other types of meters.

Payment for Service.—

Bills.—Probably the average customer does not understand his bill for electric current, and equally probably he thinks it is wrong in some way. It is, therefore, important that all of the factors which are needed to compute the bill should be stated upon it, including the meter readings and the date on which the meter is read. The service standards of eighteen out of the twenty-four commissions reporting have this requirement, which should obviously be included in the standards of all commissions.

Deposits.—Unfortunately not every consumer is financially responsible, and the utilities should be allowed to require deposits to ensure payment of bills unless the consumer can otherwise establish a satisfactory credit. On the other hand, these deposits should draw a reasonable rate of interest, and suitable provision should be made to ensure their return even though the consumer should lose his receipt or certificate of deposit. When commission standards contain no rule of this kind the consumer is dependent upon the individual practice of the utility.

Reliability and Safety of Service.—

Interruptions.—Interruptions to service are always unpleasant and the utility naturally will avoid them. When customers use current in continuous processes, interruptions are especially costly, as for instance, in foundry work. Therefore, the utilities should be required to notify their customers in advance wherever it is reasonably feasible concerning any probable interruptions. Work on lines and equipment should be done at such times as will least incommode their customers

even though it adds to the utilities costs. Eight of the commissions already have recognized this in their standards, and others should follow suit.

Inspection of Plant and System.—Utilities should be required to inspect all parts of their systems regularly and with such frequency as is necessary to ensure safety, reliability and economy. Nine commissions have more or less satisfactory rules governing this subject.

Construction and Maintenance.—The Pennsylvania commission early appreciated the need of regulating construction and with the cooperation of several of the large utilities, produced an excellent code of construction rules for crossings of wires over railway tracks and over other electric lines. Very few commissions have published rules governing electrical construction generally, which would be a task of very great magnitude were it not for what has already been done. It it very desirable, to say the least, that the commissions should go further in their control of electric lines, particularly overhead lines, for while the construction in some of the large cities is excellent, this cannot by any stretch of the imagination be said of many other localities.

Joint Use of Poles.—The prevailing attitude of utilities upon this question has generally varied from indifference to dislike, but there is at present a very hopeful movement in this direction which has been initiated by the National Association of some of the great utilities. There is rarely any considerable immediate financial gain to them except in the case of new lines and there is a certain amount of general nuisance. Consequently any advance in this direction must come largely from the public or its representatives—the public service commissions.

Joint use does ultimately result in saving money; it contributes to better appearance and in cities diminishes sidewalk

obstructions. It has, or might have, some influence on forest preservation. Hence it is the duty of the commissions to promote the joint use of poles so far as practicable. As it is a difficult subject, commissions have generally either ignored it or have merely recommended it in their service standards.

Enforcement Needed as Well as Revision.—It will not necessarily be a criticism of the public service commissions if the opinion is expressed that sufficient attention has not been given to enforcement of those standards which are now in existence. The engineering forces of the commissions, however able the individual members may have been, have in general not been adequate to perform all the multitudinous requirements that a more ideal regulation would devolve upon them, and they and the other technical forces need very considerable strengthening. Still more will this be the case when the standards are revised and extended to meet the rapidly expanded needs of regulation.

A modern alert utility management has no fear of reasonable rules concerning service, nor of the inspection to see that rules are being complied with, provided the inspectors have such experience and judgment. What it naturally dreads is a set of rules so worded that in the hands of inspectors who know only the letter but are incapable of grasping the spirit they serve as a hindrance to the utility, and an occasion for continual dispute without perhaps contributing to better service.

Section B

SERVICE STANDARDS FOR WATER

By Delos F. Wilcox

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Extent of Regulation.—Fourteen state commissions have prescribed general rules applicable to water utilities, namely,

California, Colorado, Connecticut, Illinois, Maryland, Missouri, Montana, New Hampshire, New Jersey, Oregon, Pennsylvania, Washington, West Virginia and Wisconsin. In the following paragraphs the essence of the rules of these commissions embracing the service standards of water will be given.

The general meagerness of commission control over water is undoubtedly due to the great preponderance of municipal ownership and operation of this utility in most parts of the country. Many of the commissions have no jurisdiction or at the most very limited jurisdiction over municipally owned and operated plants. This makes water supply relatively unimportant in the development of public service commission policies.

The first thing that strikes one in connection with water rules prescribed by the commissions generally, is the fact that the provision for meter testing and the adjustment of bills for metered water get practically as much attention as all other subjects put together.

Accidents.—The commissions of Colorado, Maryland, New Jersey and Pennsylvania have a general rule regarding accidents.

A utility must keep a record of all accidents occurring in connection with the operation of its plant, wherein any person is killed or injured ("seriously," Colorado, or "to the extent of three or more days' disability," Maryland) or property destroyed or damaged ("serious" damage, Colorado, or "in excess of $150," Maryland) with statement of causes and precautions taken against similar accidents in the future. In Colorado, Maryland and Pennsylvania the utility must file reports of accidents with the commission.

Complaints.—In nine states, the commissions have prescribed general rules with respect to complaints. The Colorado rule requires the utility to make prompt and full investigation

of complaints by consumers, either directly or through the commission. The same rule holds in Connecticut, Maryland and Oregon. In Illinois the utility must acknowledge in writing all written complaints, and investigate all complaints whether written or oral. The Colorado rule also requires the utility to keep a complete record of all written complaints, and of the adjustment or disposal made of them. The same rule applies in Pennsylvania; also in Connecticut with respect to all "substantial" complaints, and in Illinois, Maryland, New Hampshire, Oregon, Washington and Wisconsin, with respect to all complaints.

Making of Contracts by Consumers.—California is the only state prescribing a rule covering the making of contracts by consumers:

> A consumer is not to be required to make a contract in order to obtain service, but in case of extensions the Commission may authorize the use of contracts. A utility may, however, require that reasonable written application for service be made.

Giving Information to Consumers.—The general substance of the rules of the commissions of five states governing the giving of information to consumers is as follows:

A utility must give to its consumers such information and assistance as is reasonably possible, for the purpose of securing safe and efficient service (Colorado, Maryland, Missouri and Oregon) and to enable consumers to read the utility's meters (Colorado, Maryland and New Jersey).

Service Connections.—The matter of service connections certainly is a major subject in the relations between a water company and its consumers. Yet only four state commissions, California, Colorado, Montana and New Jersey, have provided

specific regulations covering the extent to which the utility is responsible for the service connection. In California and Colorado the utility brings the service to the property or curb line and assumes the cost of the meter. In Montana the utility assumes the cost of tapping the main, but the consumer pays for the service pipe. In New Jersey the cost of the service pipe from the curb to the premises is borne by the consumer, who also has to pay any municipal charge for opening the street.

California further provides regulations for disconnecting and reconnecting services. The cost of this work may be charged to new or resuming consumers, distributed in periodic payments or merged in operating expenses. No cancellation charge is to be made.

In Colorado in unusual cases the commission determines a proper charge. A utility may require prospective consumers to advance the cost of service connections, but such advances will bear no interest and will apply on bills until exhausted.

Meter Rentals.—Colorado, Montana, Maryland, New Jersey, Oregon and Washington do not permit a meter rental for main meters, except as to Maryland, where the rental was already included in effective rate schedules when the rule was adopted. Colorado, Maryland and Montana, however, permit a charge for sub-meters.

Records of Tests, Quality, Service Conditions and Meter Accuracy.—The rules for records of tests, quality, service conditions and meter accuracy vary considerably in the seven states making provision for this branch of water regulation. Colorado, Connecticut and Maryland specify in detail the character of the record. Illinois requires that such records as are made shall be kept available at least three years for examination by the commission. New Jersey requires a record of operation and the amount of water pumped or filtered, with

the pressure maintained at the pumping stations. In Pennsylvania general rules are provided and reports in accordance with these rules must be filed with the commission.

In Wisconsin a permanent record of "pumpage" by daily amounts, summarized by months, is required, and station meters are recommended as more reliable and satisfactory than a simple pump stroke or revolution counter.

Extensions.—The subject of extensions is closely related to the matter of service connections, particularly in those cases where the premises of prospective consumers are situated at some distance from a distribution main. A water company usually enjoys a monopoly of service within a given urban community, and one of the obvious corollaries of monopoly in a public service is the obligation to provide all necessary extensions to satisfy the public need. True, it is sometimes a matter of considerable difficulty to define and correlate the obligations of a water company and the rights of a prospective consumer or group of consumers; and no doubt in some cases, where costly extensions and the service of considerable areas are involved, it is necessary for the commission to make a special investigation and issue a special order. Yet, with every water utility being continually required to make extensions, one would think that the commission could deal with all ordinary cases by general rule. How shall it be determined whether or not the extensions are justified? Who shall pay for the extensions? If the consumers are required to make advances in certain cases, how shall they be repaid? Who is to determine whether the pipe used is of sufficient capacity to meet present and future needs for both domestic consumption and fire protection? What material is to be used? How are the joints to be made with respect to the prevention of electrolysis? What records of construction are to be kept? Obviously, in the case of a water utility, the matter of extensions

cannot be left to be determined merely by the financial interest of the company.

California apparently is the only state which has attempted to establish a general rule, and it provides the following requirements:

Under General Franchise.—The utility at its own expense must make necessary extensions to serve applicants except that it may submit to the commission for special ruling cases involving undue hardship.

Unincorporated Territory.—Extensions are subject to agreement between the utility and the applicant, and may be submitted to the commission for its determination.

Method of Payment.—Payments by applicants, when required to secure construction of extensions, shall generally be considered as loans to the utility, to be repaid as soon as conditions warrant.

Maryland merely provides that no utility shall require from a consumer or prospective consumer payment in whole or in part for the extension or installation of service except under rules properly filed with the commission and in effect.

New Hampshire rules are confined to the requirement of mains of sufficient size to supply adequately the hydrants served therefrom. Less than 6 inches is considered insufficient unless permission is obtained from the commission for the proposed construction.

Information to Be Filed With the Commission.—The Missouri commission has set forth the following rules regarding information to be filed with the commission.

> A utility's rate schedule must contain:
> 1. The practice of the utility with reference to deposits or

guaranties to secure payment of bills, including payment of interest on deposits.

2. The practice of the utility with reference to service main extensions.

Each utility must also file with the Commission a statement showing:

a. Description of test methods employed and frequency of tests or observations for determining quality and pressure.

b. Description of meter testing equipment, including methods employed to maintain accuracy.

c. Rules with reference to testing and adjustment of service meters before and after installation.

d. Rules with reference to adjustment of consumers' bills for incorrect meter registration.

Pressure to Be Maintained, Tests of Pressure.—Pressure surveys and records are required by the commissions of nine states. The commissions of Colorado, Connecticut, Missouri, Oregon and Wisconsin require a utility to maintain sufficient pressure at the ends of its mains to supply adequately "the fixed minimum for domestic service." In Colorado, Missouri and Wisconsin each utility furnishing fire service should, within reasonable notice, supply added fire service in accordance with the best standard practice. In Maryland each utility is required to maintain sufficient pressure to meet sudden demands, especially for fire service.

Utilities in all these states and also in the states of Illinois, New Hampshire and New Jersey must maintain a recording pressure gauge at their plants, which must be open for public inspection. In Connecticut, Oregon and Illinois, the utility must indicate on the graphic record the elevation and the causes of extreme variations of pressure. The conditions under which these pressure surveys and appliances are to be maintained vary in the different states from the condition in Wisconsin, where they do not apply to municipalities of less than 5,000

population, to states where they apply to all water utilities regardless of the size of the community served.

Meters, Testing of Meters, Adjustment of Bills.—With respect to the matter of meter testing, the commission usually defines the allowable slippage, the minimum frequency of tests, the records to be kept, the provision of proper facilities for testing, the conditions under which a consumer may demand a special meter test, and the rule for refunds in cases where meters are found to be running fast. One of the most important rules in this connection is the one requiring the company to keep a detailed record of the history of each meter from the date of its purchase through its various installations and tests. These and other records required by the commission's rules are ordinarily required to be kept at an office in the territory served, and are to be open for examination by the commission or its representative. There is no rule giving the consumer access to these records, except in Oregon and Washington, but in some cases the consumer has the right to be present when a meter is tested. A more detailed statement of the requirements included in the regulations of 13 commissions in regard to meter testing is given below:

Utilities in Colorado, Connecticut, Maryland, Missouri, New Hampshire, New Jersey, Oregon, Pennsylvania and Washington must keep a complete record of all tests of meters, including the cause of the test, reading of the meter, result of test, etc. In all of these states except Washington, and also in Illinois and Wisconsin, utilities must keep a record showing a complete history of each meter, including purchase, record of use, tests made, etc.

In Connecticut records of tests made must be kept for 3 years, and in Missouri for 2 years.

Quarterly reports of all tests of meters in New Jersey must be made to the commission of that State.

No meter is allowed to stay in service which has an error of over 3 per cent in Colorado and New Jersey, 2 per cent in Illinois and Wisconsin, 4 per cent in Maryland, New Hampshire and Pennsylvania, and 5 per cent in Missouri.

Some states use gallons and others use cubic feet as a basis of measurement, and while the schedules for periodic tests vary slightly in the quantities required in relation to a given number of years, the most generally accepted schedule is indicated below:

⅝-inch Meters once in 10 years or for each 100,000 cubic feet
¾ " " " " 8 " " " " 150,000 " "
1 " " " " 6 " " " " 300,000 " "
Above 1-inch meters every 4 years.

A special exception to this rule is the New Hampshire commission, which requires that all meters must be removed and tested at least once in 6 years. A utility must test at least 16⅔ per cent of the meters in service each year, until all of the meters in use at the time the rule was adopted have been tested. Oregon and Washington require meters to be tested every three years; Connecticut requires them to be tested every five years, and every utility must test each year at least 20 per cent of the meters in service at the time the rule was adopted until all have been tested.

In Colorado, Connecticut, Illinois, Maryland, New Hampshire, Missouri, New Jersey, Oregon and Washington utilities must test service meters free of charge upon request of customers, provided the meter has not been tested within twelve months (Maryland, within two years). In Colorado, Maryland and Connecticut these must be made, provided the consumer will agree to accept the result of such tests as a basis for adjustment of charges.

Pennsylvania, Montana, West Virginia and Wisconsin, however, place the cost of such tests on the consumer if the test indicates that the meter is within the correct percentage of allowance of error.

Tests may be made in Illinois at the place where the meter is installed provided the method has been approved by the commission.

In Missouri, Montana, Wisconsin, Pennsylvania and Illinois the consumer may be present at a test requested by him if he so desires. In the two last states he may require the meter to be sealed in his presence before removal, which seal cannot be broken until the test is made.

In West Virginia the complete original record of these tests must be kept for at least 3 years; in Colorado for 2 years.

Upon application of a consumer the commissions of 10 states will test a service meter, the fee varying from $1 in Connecticut, Maryland, New Hampshire, and New Jersey to as high as $8 for the largest size meters in Colorado and $2 per inch of meter size, plus transportation costs in Wisconsin. The fee will be returned to the consumer if the meter is found to be more than 4 per cent fast in Colorado, Connecticut, Maryland and New Hampshire, 3 per cent in New Jersey, and 2 per cent in Oregon, Wisconsin, Illinois, West Virginia, and Washington; and in most of these cases the utility is required to reimburse the consumer, or the commission if it has reimbursed the consumer.

Rule 44 prescribed by the Missouri commission states:

> Upon application by a consumer or a water utility, a meter will be tested at the laboratories of the State University School of Engineering. The consumer may witness the disconnection, packing and shipment of the meter if he so desires. The fee is $2.00 up to the size of one inch, and a proportionate fee for larger meters. If the meter is found more than 5 per cent fast, the utility must pay the fee and cost of shipment; otherwise the consumer will pay these expenses.

When a test shows a meter to be more than 4 per cent fast, the utilities operating in Colorado, Connecticut, New Hampshire and Pennsylvania must make a refund. The error allowed in Oregon and West Virginia is only 2 per cent.

In Colorado the refund will cover the excess charged for water incorrectly metered for one-half the time since the last previous test, provided such half does not exceed one year. In Connecticut the refund will apply to the consumer's bills for the preceding six months, unless it can be shown that the error extends for a longer or a shorter period, in which case the actual period shall be used. In New Hampshire the refund extends back six months, or to the last preceding test of the meter if that was made within six months; but the commission reserves the right to relieve the utility of this obligation if justice requires. In Oregon the refund covers bills for three months only. In Pennsylvania it is for the entire period of the current bill unless the error is due to an accident or other cause the exact date of which can be determined. In West Virginia the utility will make a refund on bills for the period since the last report test, not exceeding three months, but the commission may relieve the utility of this requirement. In Montana the rule is that if the meter is recording incorrectly and against the consumer, a reasonable adjustment will be made for a period not exceeding 60 days previous to the demand for a test.

When a meter is found to be more than 2 per cent slow, the utilities in West Virginia may apply to the commission, for authority to render a bill for the water not paid for, supplied during the period since the last previous test. The slow error allowed in Colorado and New Hampshire is 4 per cent. In Colorado the utility may charge the consumer for the deficiency in the meter measurement for one-half the period since the last previous test, but in no event for more than one year. In New Hampshire the utility may apply for permission to make an additional charge for water supplied during the preceding 6 months, but the matter is discretionary with the commission.

If a meter does not register at all during a period, the util-

ity in Colorado may estimate a charge by averaging amounts registered over similar earlier or later periods, or over corresponding periods in previous years. In Montana, when a meter is found to have stopped, the estimated charge for water must be based on the previous two months of service.

Eleven state commissions require a utility furnishing metered service under certain conditions to maintain suitable meter testers in accordance with the standards certified by the National Bureau of Standards or other recognized authority, or of a type approved by the commission, or otherwise shown to be satisfactory. In some states this requirement does not extend to the very small utilities. In Wisconsin and Maryland the use of portable test meters is permitted under certain conditions for testing meters in service. In Maryland and Missouri the toleration of error is expressly stated to be on account of the imperfection of mechanical appliances, and a utility is forbidden to set a meter wrong deliberately by the allowed percentage of error. Of the fourteen states having water service rules, only three, California, Montana and West Virginia, omit altogether any specific provision for meter testers.

A Washington regulation states:

> Every meter which has been tested for accuracy by the utility or Commission except meters set under ground or liable to be submerged shall have attached thereto a tag or label giving the number and size of meter, date and result of test and by whom made.

In Montana service on a meter for less than 6 months is considered temporary and the consumer must reimburse the utility for the actual cost of installation and removal.

Deposits to Secure Payment of Bills.—The commissions of nine states—California, Colorado, Connecticut, Maryland,

Missouri, Montana, Oregon, Washington and West Virginia—have made provisions by which utilities may require deposits to secure payment of bills as follows:

A utility may at any time require from a consumer a cash deposit not to exceed the consumer's estimated bill—for 30 days in Washington, for 60 days in Oregon, and 90 days in Colorado; or, in case of a consumer paying in advance, the estimated bill for 30 days in Oregon and for 60 days in Colorado. In Maryland the deposit must not exceed twice the estimated monthly bill or 1⅓ times the estimated periodic bill in excess of one month. Missouri, Connecticut and West Virginia utilities may require deposits equal to a consumer's estimated bill for one billing period plus 30 days, and in Montana the deposit is fixed at 1½ times the estimated monthly or billing period bill.

Interest at 6 per cent is to be paid on deposits annually in Colorado, or on return of deposits remaining at least 6 months; but the rate is to be only 4 per cent if deposits are kept in a trust fund and not used in the business. In Missouri interest at 6 per cent must be paid on deposits kept for 6 months, unless they are kept in a trust fund in which case the rate is only 3 per cent. In Maryland and West Virginia the rule merely states that interest at 6 per cent shall be paid on deposits.

In Connecticut interest at 4 per cent, and in Oregon at 6 per cent, is to be paid on deposits remaining at least three months. In Montana interest at 6 per cent is to be paid on deposits remaining at least one month, and in Washington interest at 8 per cent on deposits remaining at least 6 months. In the latter two states interest ceases when service is discontinued.

A utility must issue a certificate of deposit to a consumer making a deposit in Maryland and Colorado, and must provide

a reasonable way whereby the deposits may be returned to the consumers unable to produce their original certificates.

Under the rules of the West Virginia Commission, early in January of each year the utility must publish in a newspaper a list, as of December 31, showing the deposits which it holds, made by former consumers, the amount of each deposit with the interest due and the name of the maker. Interest shall cease with such publication.

In California deposits may be required except (1) where the applicant owns the premises, (2) where applicant furnishes a satisfactory guaranty or (3) where applicant has paid bills promptly for 12 months before the order establishing the rules. The deposit required of an applicant shall not be more than "twice the average periodic bill of consumers of his class." If a consumer in an exempted class fails to pay his bills, a deposit may be required. A deposit may be applied to liquidate unpaid bills and the consumer required to restore the deposit to the original amount. Service may not be discontinued without notice ranging from 4 days in the case of weekly bills to 15 days in the case of monthly bills. Where flat rates exist, advance payments may be required. A cash deposit which has stood unimpaired for 12 months shall be returned. Six per cent interest is to be paid on deposits except where the consumer has had service for less than 12 months.

Purity of Water, Tests.—Purity in a domestic water supply is fundamental. Its primary importance makes it imperative that in water service the desire for profit shall be absolutely subordinated to the requirements of public health. This, more than anything else, is responsible for the general development of public ownership in this utility.

Water furnished for human consumption in Colorado, Connecticut, Missouri and Oregon must be free from disease-

producing organisms and substances. A utility furnishing water in Maryland for human consumption or household purposes must have a sample of its water examined periodically. Water must be tested monthly in Colorado by all utilities, and weekly by utilities furnishing a municipality of 5,000 or more inhabitants. The making of tests from time to time, and the use of filtration or other precautions to secure purity, are required, or at least recommended, in most of the other states having rules on this subject.

In New Jersey water utilities must put into practice a definite plan for flushing hydrants and dead ends of mains. Colorado, Maryland, Missouri, New Hampshire and Wisconsin also have rules on this subject. Colorado requires dead ends to be flushed at least once a week, Wisconsin requires a record to be kept of flushings.

Interruptions of Service, Discontinuance.—In 9 states —Colorado, Connecticut, Maryland, Missouri, New Hampshire, New Jersey, Oregon, Pennsylvania and Washington— the commissions have required a record to be kept of all interruptions in the water supply, stating various facts, such as cause, time, extent and duration of the interruption. In four states—Colorado, Illinois, Missouri and West Virginia— water utilities must give due notice to their consumers of their intention to cut off the supply.

Meter Readings and Bill Forms.—Bills for metered service must show meter readings at the beginning and end of the period covered and dates of reading, in the state of Colorado, Connecticut, Illinois, Maryland, Missouri, New Hampshire, New Jersey, Oregon, Washington and Wisconsin. In five states, if the consumer requests it, a utility must have a memorandum left on the meter showing the result of the reading.

Section C

GAS STANDARDS

By Willard F. Hine

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Pressure Requirements.—The subject of proper rules and regulations with respect to standards for pressure, candle power, heating value, sulphur content of gas, the periodic testing of gas meters, and the various records which should be kept and tests and reports which should be made by gas corporations has been given a great deal of attention by state commissions during recent years.

Pressure is one of the most important elements of good service. If pressure is too low, it will be impossible for the consumer to obtain enough gas at the appliances to do his work in a satisfactory manner and in a reasonable amount of time. If it is too high, it will be necessary for the consumer to turn down the gas at the burner cock when it is lighted in order to have satisfactory service, and it will cause excessive breakage of mantles and glassware on lights, as well as being the possible cause of danger in extreme cases. It is even more important that a fairly uniform pressure be provided at all times. Well designed gas-burning appliances are so constructed that they can be adjusted to operate satisfactorily and economically at any pressure over a considerable range, but where once adjusted for a certain pressure any excessive variation therefrom will result in reduced efficiency and cause sooty deposits, flash-backs, etc.

A minimum pressure of 1½ inches water column was generally fixed in regulations adopted by state commissions prior to 1914, although the commission for the First District in New York and the Washington (State) Commisson had prescribed a minimum of 2 inches. Since 1914, several other state com-

missions have adopted 2 inches as the minimum pressure. It should be noted, however, that often where the 1½ inch minimum is in effect, the pressure is to be measured at the consumer's meter outlet, while most other rules provide for measurement at the end of the service or at the meter inlet where the pressure is somewhat higher because of the loss in the meter.

The earlier rules generally allowed a maximum pressure of 6 inches water column for manufactured gas. Later several state commissions have issued rules permitting 8 inches maximum pressure, and the tendency during the last few years has been toward higher pressures.

The maximum daily pressure variation for manufactured gas has generally been limited to 100 per cent of the minimum pressure. The commissions for the First District, State of New York, and for Oregon have limited the daily variation to 2 inches and the New Hampshire Commission to 3 inches water column.

Generally speaking, the usual pressure requirements prescribed by the commissions will result in good service when obeyed, but better results might be expected if the daily variation were further restricted. While the practice of limiting the permissable daily pressure variation to 100 per cent of the minimum pressure has been general, uniformity in pressure is such an important factor in the rendering of good service that it is more desirable to fix a definite and narrow limit on the allowable daily variation, as has been done in New York City, Oregon and New Hampshire. This is especially true where the spread between permissible minimum and maximum is considerable, i. e., from 1½ to 8 inches, as fixed in Pennsylvania and some other states.

Heating Value.—The first standards fixed for the measurement of gas quality related to candlepower. The candle-

power of a gas is a practical measure of its quality only where it is used in open-flame burners to provide illumination. There is no question but that the candlepower standards which were specified at the time when gas was so used almost exclusively have become of less and less value with the general introduction of mantle burners and the increased use of gas for cooking, heating and industrial purposes.

Since the mantle burner has been perfected, the amount of gas used for illuminating purposes in open-flame burners has constantly decreased, until it is of slight relative importance, except possibly in a few of the larger cities of the country where the change to mantle burners has not been so rapid. For all other purposes, such as cooking, heating and most industrial applications, gas engineers are agreed that the heating value of the gas is the best measure of its usefulness to consumers, and practically all states and cities that have fixed standards during the last ten or fifteen years have changed from candlepower to heating value specifications. It should be noted, however, that in those states where commissions, prior to 1914, had adopted regulations fixing the heating value of gas, the monthly average had been fixed at 600 B.t.u. (British thermal unit, or the amount of heat required to raise one pound of water one degree Fahrenheit) in all cases except in Nevada, where the standard was 550 B.t.u. In the case of cities where local regulations were effective, heating value standards of less than 600 B. t. u. monthly average were applicable in only a few of the cities in the far west and south.

The Wisconsin Commission, after an extensive investigation in both laboratory and field, covering considerable time, had fixed a monthly average heating value standard of 600 B.t.u., predicated principally on the average heating value of the gas that was supplied by the companies prior to state regulation.

Arguments for Lower Standard.—During the last five or six years gas companies generally have maintained that these old heating value standards should be reduced. The usual arguments put forth are well illustrated by the proceedings before the Pennsylvania Commission in 1920, where the companies requested the commission to change the heating value requirement from a monthly average of 750 B.t.u. per cubic foot for all manufactured gas except by-product gas (the standard for by-product gas was 550 B.t.u.) to a monthly average of 500 B. t. u. for all manufactured gas. As a result of this request the commission reduced the standard for Pennsylvania to a "monthly average of not less than 520 British thermal units total heating value per cubic foot."

At the public hearing before the commission, the gas companies produced five witnesses who gave testimony in favor of the reduction and the commission produced one witness who gave testimony as to the experience under the heating value standard in the State of Massachusetts, the general purport of the testimony being that:

1. Gas oil used in the manufacture of water gas was more expensive than it had been in earlier years and would continue to go up in price, was of poorer quality, could not be as efficiently utilized in the machines, was being used in constantly increasing quantities because of the increased amounts of gas made, was becoming less available because of the development and increased use of "cracking" processes for the production of gasoline, and would probably not be available after a few years.

2. Less gas oil would be required to make gas conforming to the lower standard of heating value and hence the supply would be conserved.

3. Heating value standards had been recently reduced in several states, in the Dominion of Canada and in England.

4. A standard of 500 B.t.u. is more economic and gas of that quality will render good service.

5. Changing the standard from 570 B.t.u. to 500 B.t.u. would not result in any actual increase in the amount of gas used by consumers.

That gas oil is more expensive than it was prior to the war cannot be disputed, but the same can be said of almost every commodity. However, the rather pessimistic views as to the future of the oil supply have not been substantiated by experience during the last two years. Gas oil has been and can now be obtained at lower prices than were in effect in November, 1920, notwithstanding the fact that at that time there was "a softening of the market because the gasoline consumption is falling off." It was said that it was "only temporary and that next summer and fall it is going to be where it was and we don't know whether we will get any gas oil or not two or three years from now." The consumption of gasoline has continually increased.

It is certain that it will require less gas oil to make 500 B.t.u. or 520 B.t.u. gas than to make gas having a higher heating value, and it is probable that the lower standard will permit certain other operating economies. But is the lower standard economic and wise because it allows the companies to produce gas for less money and thereby to increase their earnings? The other side of the proposition must be carefully considered before this question can be finally answered.

Heating Value Best Measure of Usefulness.—Gas engineers are practically agreed that the heating value of a gas, that is to say the measure of the amount of heat that a unit quantity of the gas will give off when burned, is the best measure of its usefulness. One of the witnesses for the companies stated at the hearing before the commission that "probably from 85 to 95 per cent, in some cases probably nearly 100

per cent, of all of the gas used is dependent upon its heating value." Certainly this indicates that heating value is the measure of its utility, that a decrease of 5 or 10 per cent in B.t.u. content means a corresponding decrease in its ability to give off heat and do useful work. Otherwise, how can the heating value be a good measure of its usefulness? How can it be said that gas is dependent upon its heating value?

If the heating value of gas is a good measure of its usefulness, it means that, in reducing the B. t. u. standard from a monthly average of 570 to a monthly average of 520 in the case of manufactured gas (other than by-product gas) the Pennsylvania Commission actually allowed the companies to *decrease* the available heat delivered per cubic foot of gas by about 8¾ per cent without any reduction in the price charged per cubic foot. There was no evidence in the record before the commission even tending to show that the rates charged were inadequate in any respect, or that the reduction of the standard would tend to offset increases in rates that would otherwise be necessary. It was plain that the change would result in a reduction in operating expenses, but this gain went to the companies. Certainly, the consumers received no economic benefits from a change which meant that they received a smaller number of heat units in return for every dollar expended for gas.

The companies maintained, however, and attempted to show by the witnesses produced, that the reduction from a monthly average of 570 B.t.u. to a monthly average of 500 B.t.u. would not result in any increase in the amount of gas used and that consumers would not use any more of the lower heating value gas to do the same amount of work. If this be true, it can only mean that the heating value is not a good measure of the utility of the gas and of its relative usefulness.

Certain evidence was submitted at the hearing tending to show that in certain places where standards had been reduced

the change resulted in no increase in gas consumption or that the increase in consumption was not as great as the decrease in heating value. The figures showing comparisons of gas consumption under different standards are not conclusive, and the most that can be said is that they do not prove that the reduction in the gas quality has increased gas bills. In making any such comparisons, it is almost impossible to eliminate many factors, other than the change in standard, which would affect gas bills. Any one will admit that temperature and weather conditions, price of food, industrial conditions, wages, unemployment, price of electricity, cost of other fuels, etc., have an important bearing on the amount of gas consumed. They have no relation to the changes in standards, but their effects on gas consumption can easily efface the effect of a 5 to 10 per cent reduction in the heating value. Further, comparisons made in different places show widely different results.

In practically all cases where figures have been made showing the change in the amount of gas used after the standard has been reduced, the comparison has been between the amount of gas used prior to the change when appliances were in a normal state of adjustment, and after the change when the appliances had just been adjusted to most effectively utilize the lower heating value gas. When this fact is considered one need not feel surprised at the results indicated by such comparisons. One would expect that a proper adjustment of the appliances in use would offset the reduction in the heat units required. Very probably, if such adjustments had been made and the quality of gas remained the same, there would have been a very material reduction in the amount of gas consumed.

Conclusion of Philadelphia Gas Commission.—The Philadelphia Gas Commission, after an extended study of gas conditions in Philadelphia and an analysis of a great deal of testi-

mony in connection with the effect of changes in gas standards, arrives at the following conclusions:

> The Commission is of the opinion that for the great majority of purposes the amount of useful work which can be done with a given amount of gas is dependent upon its heating value, and that, other things being equal, the amount of gas used will generally be inversely proportional to the heating value. Appliances can be adjusted to burn twenty-two candle power or high heating value gas just as efficiently as 530 B.t.u. or low heating value gas, and experiments have shown that with properly adjusted mantle burners, the light produced varies approximately with the heating value. If the heating value is not a proper measure of the utility of gas, why should a heating standard be specified? It should be noted that even the witness produced by the Company admitted that for water heating and for industrial purposes, the amount of gas required would vary almost in exact inverse proportion with heating value.
>
> All in all, it is our opinion that when a change is made from twenty-two candle power gas to 535 B.t.u., or a reduction in heating value of seventeen per cent, the amount of gas required to do a given amount of work under conditions permitting each gas to be burned as efficiently as normal practice will allow, will not be increased seventeen per cent but a somewhat smaller amount, probably from ten to fifteen per cent. If these conclusions are sound, it follows that any reduction in the number of heat units supplied without a corresponding change in the price per thousand cubic feet will cause consumers to pay larger bills for the same amount of work performed. Consequently, any change in standard without consideration of the price and the cost of making the lower quality gas would be extremely unjust and wholly unwarranted, especially as the consumer using gas most efficiently is the one most adversely affected.

It should be noted that the commission, in stating the conclusions quoted above, was considering a change of standard from twenty-two candlepower to one of 530 B.t.u. This is an extreme change as compared with the one made by the

Pennsylvania Commission—from 570 B.t.u. to 520 B.t.u. High candlepower gas must contain a high percentage of illuminants and unfixed hydrocarbons, which have a tendency to cause sooty deposits when burned in appliances and is difficult to use at maximum commercial efficiency. One would expect that the increase in the amount of 520 B. t. u. gas required to do the same work as 570 B. t. u. gas would very nearly correspond with the reduction in heat units.

Statement of United States Bureau of Standards.—The United States Bureau of Standards in the third edition of Circular No. 32, issued March 10, 1915, says:

> There is no doubt that in many cases the volume of gas used would change very little with changes in quality, but in most cases the total heat used would be substantially constant regardless of quality.

and further:

> Unless the present price in any given case is shown to be too low, the reduction in the heating value below what is now furnished, would not be fair to the public, unless the price be reduced.

In the fourth edition of the same circular, issued December 7, 1920, the Bureau also states that "in actual practice the usefulness of gas in mantle lights is very nearly proportional to its heating value" and also:

> Since heat is what the user wants, a cubic foot of gas having a heating value of 600 B.t.u. will be more useful than one containing 500 B.t.u.; and if an appliance be adjusted to give equally good service and equal thermal efficiency in both cases, the usefulness would be in simple proportion to the heating value.

In a circular dated October 4, 1922, entitled "Relative Usefulness of Gas of Different Heating Value and Adjustments

of Burners for Changes in Heating Value and Specific Gravity" (Circular No. 222) the United States Bureau of Standards also says:

> Irrespective of the heating value of the gas, the efficiency (ratio of heat absorbed to heat contained in the gas burned) obtained with any one burner is very nearly constant, provided the burner is adjusted to consume the same number of B.t.u. per hour with each gas.

Conclusions of California Railroad Commission.—The contention of the companies is at variance with the conclusions reached by the Joint Committee on Efficiency and Economy of Gas of the Railroad Commission of the State of California. This committee, composed of three members representing the commission and thirteen members representing the gas companies, has been at work since the middle of 1920 and has carried on extensive field and laboratory investigations dealing with the relative efficiency of manufacture and distribution of gas of different qualities. Among the conclusions set forth in its last report, dated September 20, 1922, are the following:

> The efficiency of manufacture of oil gas where straight-shot sets are used and as now operated, is practically constant with qualities of gas from 570 to 540 B.t.u. per cubic foot, with a tendency to a reduction in efficiency as the heat content of the gas is lowered below 540 B.t.u.
>
> The efficiency of manufacture of gas by the use of the Jones Improved sets is practically constant between the limits of 570 and 530 B.t.u. per cubic foot with a slight tendency to reduction in efficiency with a lowering of quality below 530 B.t.u.
>
> There appears to be no difference in uniformity of gas quality within the range of from 570 to 500 B.t.u. per cubic foot in the case of the operation of straight-shot generators.
>
> Uniformity of gas quality is easier to maintain within the range of from 550 to 530 B.t.u. per cubic foot than at higher qualities, in the case of the Jones type generator.

> For all practical purposes it may be concluded that the use by consumers of gas made by either of the California oil gas processes will vary inversely in proportion to the change in quality of gas supplied within the limits of a delivery to consumers of from 600 to 500 B.t.u. per cubic foot, conditions of uniformity of quality and pressure remaining the same.

When the Pennsylvania Commission reduced the monthly average heating value standard from 570 B.t.u. to 520 B.t.u., without any reduction in price of gas, it practically increased the cost to consumers, for the same service by an amount in excess of 8 per cent. And this change was made although there was nothing in the record before the Commission indicating that the rates for gas were in any manner inadequate.

Sulphur Requirements and Complaints.—Practically all state rules with respect to sulphur provide that manufactured gas shall in no case contain more than 30 grains of total sulphur per 100 cubic feet, and that the gas shall not contain more than a trace of hydrogen sulphide.

The rules and regulations of most state commissions provide for records that shall be kept and reports the companies must make to the commission with regard to service interruptions, complaints as to service inspection of equipment, and accidents.

Meters, Calorimeters, Etc.—The rules and regulations of state commissions also contain rules relating to meters, meter testing, pressure surveys, calorimeter tests, fees for meter tests on complaint, etc. They generally provide that no gas meter shall be placed in service which is in error more than 2 per cent, that no gas meter shall be allowed to remain in service more than a certain number of years without being tested, that records shall be kept showing the complete history of all meters,

that the companies shall provide facilities for meter testing, that certain pressure records shall be made and kept by each utility, that all but the smaller utilities shall make heating value tests of the gas supplied, that upon complaint of any consumer the companies shall test his meter for certain fixed fees depending upon the size and kind of meter, and that if a meter tested is found to be more than 2 per cent fast a refund shall be made to the consumer.

Section D

ELECTRIC RAILWAY STANDARDS

By Roy Husselman

Consulting Engineer, Cleveland, Ohio

District of Columbia Standards.—Generally speaking, public service commissions have been reluctant to establish broadly applicable standards to street and interurban railway operation. While in fully two-thirds of the states the commissions have adequate jurisdiction, in only five have anything approximating general standards been set up, while in a dozen more some rulings have been made in specific cases, and usually on specific points, which are generally applicable.

In its report in connection with order No. 188 under date of September 25, 1916, the District of Columbia Public Utilities Commission said:

> From the time the Commission commenced its supervision of electric railway service, the necessity was felt for a measure of that service and for a standard to be applied thereto. . . . . Having in mind the possible adoption of standards of service for the District of Columbia, studies of the application to this service of the principles involved were made and a public hearing was held. . . . . The purpose of the present proceeding is to set forth a means of measuring service and, by

that measure, to standardize the service in the District of Columbia.

The commission then proceeds to outline the studies upon which it bases the determination of the standards designed to prevent uncomfortable crowding on the cars in the District of Columbia and shows how it determined the standard of 100 seats per 80 passengers during the non-rush traffic and seven square feet of standing area per standing passenger during rush traffic. It outlines the method used in computing the number of square feet of each class of car used in the district and defines the time for compiling the results of traffic observations. The commission then orders that "the following regulations concerning standards of electric railway service in the District of Columbia be, and the same are hereby made and prescribed."

STANDARDS

(8) For non-rush traffic, on the average 100 seats per 80 passengers carried during a period of one hour, the hour period to be measured commencing on the hour and on the quarter hour points of the hour.

(9) For rush traffic, on the average 7 square feet of available standing floor area per passenger carried above the number for which seats are furnished during a period of one-half hour, the half-hour period to be measured commencing on the hour and on the quarter hour points of the hour.

(10) The tables attached to and hereby made a part of these regulations indicate the seating capacity and available standing floor area of the passenger cars now being operated in the District of Columbia.

The Commission defines the hours of non-rush and rush traffic; also a traffic report and an observation point; provides for the exceptions from the standard of service, for the observance of schedules, for the making of observations and reports, for procedure in the case of non-compliance and for require-

ments of a change in headway. It is to be noted that Paragraph 10 of the standards as quoted refers to tables which indicate the seating capacity and available standing floor area of all cars operated in the District. These tables were attached to the order. Order No. 188 has been modified, but only as to detail, by subsequent orders.

In order No. 343 dated September 25, 1919, the Commission prescribed regulations as follows: (1) For operation with due regard to safety, comfort and convenience of passengers and the safety of the general public; (2) that no trailer car shall be operated for the purpose of carrying passengers unless there be a separate conductor or employee acting as such for each car; (3) for the speed and control of cars; (4) for stops; (5) signs; (6) announcement of junction points; (7) protection against collisions; (8) headlights; (9) markers; (10) equipment; (11) fenders, wheel guard and pilots; (12) protecting rails, doors, etc.; (13) brakes; (14) sanitation; (15) ventilation; (16) lighting and heating; (17) smoking; (18) passenger regulation and (19) accidents. From all of which it will be seen that the service and operation of street railways within the District of Columbia is rather fully regulated by the Utilities Commission and that the companies are required to operate under definite rules and regulations and according to standards prescribed by the commission.

Maryland Street Railway Standards.—The Maryland Commission has followed in a good many ways the practice of the District of Columbia Commission. Its orders cover items as follows:

1. Stops. All cars except cars loaded to capacity, and disabled and special cars, and cars which are behind schedules due to a blockade, must stop to take on or discharge passengers at regular and special stopping places. Stops, public places and transfer points must be distinctly announced by conductors.

2. The temperature within any closed car in service shall not be allowed to fall below 40 degrees F. above zero. Cars in service shall be cleaned and made sanitary daily and thoroughly cleaned with an antiseptic solution at least once every seven days or oftener as the Commission may require and must be equipped with a ventilating device.

3. Service. Provision is made for the handling of passengers on platform; the filing of changes in schedules of headway between cars; the making of traffic and service checks, and rules to be followed in case of emergency or unusual traffic conditions. Upon all of the tracks regularly operated cars to be operated between the hours of 6 o'clock A. M., and 12 o'clock midnight (except during morning and evening rush hours of all week days and after 1 P. M. Saturday) at such intervals that the cars, passing any point outside the business district on their routes in each direction during any 30-minute period between said hours, shall contain an average number of car seats amounting to 100 seats for every 100 passengers carried on said cars; that at no time or place on any line or route, except on lines operated outside of present city limits, shall there be scheduled less than one car during each and every 15-minute period of the entire 24 hours of each day, with the six hours between 12 midnight and 6 A. M., excepted; that on all week days during the rush hours (defined between the hours of 6 A. M. and 9 A. M. and 4.30 P. M. and 7 P. M. and after 1 P. M. on Saturdays, Sundays and holidays excepted) the company shall operate its car on all lines at such intervals that the cars passing any point on any line in each direction during any 30-minute period between said hours shall contain an average number of car seats amounting to 100 seats for every 150 passengers carried by said point in each direction, and further that under no circumstances shall there be carried on any individual car a greater number of passengers than the maximum prescribed by the commission. The order

then sets forth the seating and standing and total capacity of all cars, and a later Order No. 4156 provides that placards be provided in each car showing the maximum capacity of said car as prescribed by the commission.

4. Equipment. This section of the order of the commission provides for approval by the commission of plans for new cars and remodeling of old cars, lights, flat wheels, discharging of passengers, gates, doors, chains and guards, sand and fuse boxes, handles, signal bells, signs, fenders and wheel guards and repair of cars.

Department of Public Utilities of Massachusetts.—While this Commission has not established any general street railway standards it has established certain regulations with respect to safety devices on street cars, the operation of cars over railroad crossings at grade, and the heating of cars, which are applicable to all street railways operating within the Commonwealth.

The rules for operating cars at street railroad crossings provide specifically that unless authorized by the Department street railway cars operated by or in charge of one man shall not be operated over railroad crossings at grade unless these crossings be protected by train crews or gatemen or flagmen; provides specifically for the operating of the car approaching and about to cross a railroad crossing and for the maintenance of a trolley guard over the trolley wire at all railroad crossings at grade where street railway cars operated by one man cross the lines of a railroad.

The provisions for heating require that all box cars used for the transportation of passengers shall be equipped with suitable aparatus for heating by electricity unless otherwise specifically authorized, and that from the 15th day of October until the 15th day of April, whenever the outside temperature is less than 40 degrees F. above zero, the inside temperature

shall be maintained at not less than 40 or more than 60 degrees F. above zero.

The provisions for safety devices on street railway cars prescribed by this commission are as follows:

(1) Every self-propelled car or train, while in a subway or tunnel and between one-half hour after sunset and one-half hour before sunrise while operated on a surface line, shall be equipped with a lighted headlight which shall contain a lamp so maintained at all times as to give a light of not less than eighteen candle power while such car or train is in motion, together with a reflector having a concaved polished surface maintained at all times in good condition and adjusted so as to illuminate the roadway in advance of the car or train.

The foregoing provision shall not apply to trains operated solely in lighted subways and on elevated structures.

(2) Every street railway car operated on a surface line of a street railway shall be equipped with wheel guards across the front and rear of each truck, the bottom of which guards shall not be more than four inches above the level of the rail. Such guards shall be at least six inches in height from the bottom to the top thereof. Where the truck frame is so constructed as to prevent the attachment of a guard six inches in height, the guard may be less than six inches in height, provided that the space between the top thereof and the truck frame is not more than two inches in width, and the distance between the bottom of the guard and the top of the truck frame is at least six inches.

(3) Every street railway car operated in this commonwealth shall be equipped with hand brakes, at all times in good working order, effective when applied from either end of the car.

(4) Every self-propelled car operated on the surface lines of street railways shall be equipped with mechanical devices for distributing sand on the rails, maintained so as to be of immediate service to the operator of the car at any time.

(5) Every street railway car operated by and in charge of one man shall be equipped with either (1) a device so designed and maintained that upon the release of the controller of the car by the operator the motive power will be cut off

from the propelling motors of the car and the brakes will be applied, together with a device located in a conspicuous place to the rear of the front platform and vestibule of the car and accessible to the passengers by the operation of which a door at the rear of the car will be unfastened so that it can be opened from the inside of the car, or (2) shall be equipped with a device located in a conspicuous place to the rear of the front platform and vestibule of the car and accessible to passengers by the operation of which the motive power will be cut off from the propelling motors, the brakes applied and a door at the rear of the car unfastened so that it can be opened from the inside of the car. Instructions as to the location of said devices accessible to passengers and their use in an emergency shall be posted in a conspicuous place in the car.

(6) Emergency lifting jacks, required under the provisions of Chapter 598 of the Acts of 1915, shall be of at least fifteen tons capacity for cars weighing fifteen tons or over, or at least ten tons capacity for cars weighing less than fifteen tons.

Wisconsin Attitude.—The Wisconsin Commission, on its own motion, investigated the question of standard rules and practices for electric railroads, and in its opinion and decision held in effect that many features of electric railway operation affecting safety and adequacy of service may be the subject of standard rules on all lines, though certain features in the operation of each property may require special treatment, it being also recognized that the problem confronting the small roads is different from that confronting the large roads; that as regards car construction or equipment, proper consideration for the height of floors and platforms, height of step, size of door openings, arrangement of doors, width of aisles and passageways, and many other features would be in the interest of safety and adequacy of service and that at some future time certain features of car design might be reasonably required to conform to certain limitations.

The Commission then ordered that each electric railway

operating in Wisconsin comply with a set of rules covering: the filing of its book of rules governing operation of cars and trains and trainmen's time tables; the submission for approval of plans and specifications for pilots, fenders, lifeguards, etc.; equipment, all main-line switches on interurban tracks for day and night indication; regulation of speed on approaching switches; rear lights; plans and specifications for cars; use of "one-man" cars, etc.

Other States.—During the war the California Commission established the skip-stop on street railways as one of the methods to conserve power during the war emergency. With the passing of this emergency this requirement was removed by the Commission.

The Public Utilities Commission of Connecticut has approved specifications submitted to it by street railways operating in the state for the construction of one-man cars. It has not, however, in any order approved their use for all classes of transportation. The skip-stop, which was a federal suggestion, was generally approved by this commission, and it has also approved and suggested for adoption a number of safety devices. The Connecticut Commission considers headway only in cases where the service appears to be inadequate and additional cars are put into service.

In Maine public laws relating to the jurisdiction of the commission require an inspection of all railroad equipment, and when anything is found that is unsafe the commission orders the company involved to make repairs.

The Pennsylvania commission has issued general orders on two items of street railway service (1) providing for carrying jacks and (2) carrying methods of constructing of aerial line cross-arms.

In California consideration has been given to the question

of seating capacity, the type of cars proper for use on certain lines and has made recommendations regarding the schedules.

Street Railway Service.—Orders of a commission resulting from a formal complaint and which prescribe certain rules and regulations with respect to the street railway service or facilities of a particular company only cannot, in the writer's opinion, be classed as "standards." For this reason no attempt has been made to study the orders of the various commissions in each individual case which has come before them as a result of a complaint.

Undoubtedly, the operation of street railways does not lend itself to the establishment of definite standards for service to the same extent as those utilities which supply commodities such as gas, water or electricity. These latter commodities have certain measures of quality and are supplied under conditions which may be easily standardized for large and small companies alike. Even though these same conditions do not obtain to like extent in the street railway field, it is unquestionably true that those commissions which have jurisdiction over street railways might easily set up uniform standards applicable to safety devices and measures, and covering such matters as the heating, crowding, sanitation and ventilation of cars used for transporting passengers and applicable to all railway companies. Such standards could be established by the commissions without in any way running the risk of interfering with the management of the properties. At the same time the standards would not only aid considerably in the rendering of adequate and safe service but would tend to prevent the filing and investigation of many complaints on subjects relating to those features covered by the standards and thus eliminate a considerable amount of detailed work on the part of the commission.

Section E

TELEPHONE STANDARDS

By Munson D. Atwater

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Judging Telephone Service.—To gauge fairly the continuous telephone service rendered a given community of considerable size is a task of many details, requiring thorough study by unbiased and experienced investigators.

As a basis for expert opinion, each exchange unit, I per cent of subscribers' stations, 10 per cent of aerial construction, and 1 cable vault in 10 should be inspected, the actual condition of 10 per cent of cable conductors should be ascertained, the general scope and condition of plant and traffic records should be observed and accurate service tests should be made of 1 per cent of an average day's calls, preferably 1/10 per cent of a month's calls. A year's monthly peg count records should be studied with full information regarding the counting method. Weight should be given to public relations and treatment of employees.

Use and Usefulness of Telephone Service.—The "use and usefulness" and the results of operations generally known under the term "traffic" afford the readiest opportunity for securing numerical comparisons of telephone service.

The use and usefulness of a telephone exchange are prima facie indication of its value. A rather high number of originated calls per station per 24 hours would be:

Population	3,000	5,000	50,000	100,000	500,000 and over
"Calling Rate"	3	5	7	9	10

Thirty subscribers' stations per hundred population is now rated a high "development." Commercial long distance service should reach all communities having post offices.

Traffic

General Requirements.—Minute instructions to operators should be issued, taught in a formal school with a practice switchboard, and enforced. Toll rules must be standardized, including routing instructions. Unfailing courtesy, cheerfulness, proper elocution, verification, accuracy and speed—especially of disconnections—are essential. By state laws telephone conversations must not be divulged by employees. Inspectors should test the service frequently and secretly. Toll supervisors should be employed, with monitor equipment. Fire drills should be conducted regularly and seriously. Local and toll traffic studies should be made regularly and kept on file.

Extreme precautions should be taken to insure accuracy in counting calls either by hand or by automatic service meters.

Switchboard records should show "position" and location in answering bank of each subscriber's line. Switchboard markings including line numbers, lamp caps, P. B. X. trunk and party line indications, changes in number and takeouts should be kept up to the hour of notification to the department, and spare numbers should be kept plugged out.

Information and directory lists should be kept corrected within a few hours of the actual change.

Comparison of Loads.—A call may be counted whenever upon plugging in to answer a call, a voice is heard on the calling line.

A unit call is one handled in the "A" board multiple of a No. 1 type manual board with manual operation of ringing and listening keys.

Switchboards should be "balanced," i. e., the load should be distributed equally among the operators.

Manual boards permit this by laborious rearrangement of lines at an intermediate frame but more advanced types of switchboard distribute calls automatically.

Unnecessary operators should be excused from the board.

Miscellaneous Traffic Data.—Other traffic data are summed up in the following table, based on conflicting claims of manufacturers and operating companies:

	Coefficient	% Occupied Time	Ave. Working Time per Call, Sec.	8 Hr. Av. Load, Calls	Busy Hr. Load, Calls
No. 1 manual sw. bd.	1	60	10–13	160	240
" 1 team work sw. bd.	1.2				
" 1-C. sw. bd.	.87				
"A" to "B"	1.5		20		
"A" to "L. D."	2				
"A" to spec. opr.	2				
"A" tandem	3				
Feature sw. bd.	.6	75	9	300	400
Call Dist. sw. bd.	.56	75		375	425
Sgl. Cord " "	.56				
Semi. Auto. " "	.25	90	5	700	960
5 Digit "A" dial			5		
Each additional digit			1		

Standards of Service, for Business Hours of the Week.—The table on the next page is suggested as standards of service for business hours of the week.

Morning and evening, Sunday and holiday service may be 50 per cent slower. Night service may be based on a 15 second answer. Accuracy and courtesy should be maintained at all times.

Service Standards for Automatic Equipment.—Automatic switches should be capable of 50,000 test operations without failure. They should function on loops of 1200 ohms resistance, and 20,000 ohms leakage. Detected troubles should not average above 2/10 per cent of calls in five digit installations, nor above 6/10 per cent in any case. Dials in service should average not over two detected faults per year per five digits.

	Magneto	No. 1 C. B. Manual	Feature	Call Distribution Feature	Call Distribution Single-Cord	Semi-Automatic or "Auto-Manual"
Av. Plug Sec.....	6	3.8	3	2.8	2.8	3.
" Answer "	6	4.	3.2	3.	3.	3.
" Disconnect Sec.	12	5.	1.	.4†	.4†	.4†
" Recall "		4.6	3.6	3.	3.	3.
Slowest Answer "	40	20.	10.	9.	9.	8.
Long Distance "	15	15	15.	15.	15.	15.
Special Operator "	30	30	30.	30.	30	30
90% of Answers...	12					
95% " " ...		10	7	7	7	5.
Operating errors, %:*						
Single unit.....	2	2	3	3	2	1.5
Multi. unit.....		3–4				
Tandem trunking		5				
Discourtesy.....	.5	.5	.5	.5	.4	.3

*Serious errors involving inconvenience to subscriber.
†Automatic disconnect depends on speed of switches, usually 10 impulses per second, four impulses generally being required.

The apparatus should be so designed and maintained, especially by routine inspections, that in exchanges of five digits the actual time consumed in making repairs and adjustments should not average over 15 minutes per fault and not over 7 man hours per year per line should be necessary for maintenance labor. In any case these figures should not exceed 20 minutes per fault and 10 hours per line per year.

The total elapsed time from initiating a call to a called party's answer may average in a single unit exchange, 23 seconds, but for residence calls alone 40 seconds. Calls not completed may run, at the maximum, "lines busy" 13 per cent, "don't answer" 4 per cent, abandoned 8 per cent—total 25 per cent.

Tone Tests.—It is desirable that the subscriber be enabled to hear and recognize a busy tone, reverting ringing tone, and howler. A trouble tone may be used, but it is better to have the operator notify the calling party of a line in trouble.

Measured Service.—Message registers, coin collectors, etc., should be accurate and should be operated honestly. Details on this subject are considered to be a feature of rate schedules rather than of service standards.

To reduce errors to the minimum is of the greatest consequence. For example, to obviate one double connection spares three patrons annoyance.

The percentage of calls answered at different intervals may well be plotted for study and exhibition. A typical series of tests of fairly good No. 1 manual service runs as follows:

Seconds..	2	3	4	5	8	10	30
Per Cent.	10	50	75	85	92	95	longest

Although the speed of answer is the common criterion of service, the difference between a 3-second and a 4-second answer is not vital.

The elimination of all answers above 10 seconds, however, is of great importance and may be achieved by the adoption of modern equipment. The operator's work time on a No. 1 manual single-unit board may be taken as 13 seconds divided as follows: Plug and answer 2, verify and plug up 3, ring and supervise 6, disconnect 2—total 13. The effect of reducing work time on the service will be understood when one considers the fairly common event of three calls appearing at one time before one operator. By neglecting disconnects and recalls (as she would) with one type of board, the third call would stand 22 seconds, with another 16 seconds, while with the most advanced type, and with no neglect of disconnects and recalls the third call would stand for only 6 seconds. Team work at a No. 1 board tends, however, to prevent abnormally slow answers.

Service Standards for Full Automatic Equipment.—There is little in common between full automatic and

manual switchboard service. The former loses entirely the human element, which at its best is highly appreciated.

The dial controlled automatic is commonly not practicable in the dark, although luminous dials have been suggested. It does not respond promptly to shouts of "Fire," "Police," "Help," or a scuffle. It is inconvenient to manipulate while using a directory. The cost is as great or greater than that of manual service, due to the greater initial cost of the apparatus, higher degree of insulation of lines required and high maintenance cost, and the numerous errors of the unskilled self-operators are annoying to other subscribers. It has a tendency to discourage the use of the telephone, as reflected in a decreased calling rate. On the other hand, it has several great advantages, e. g., it is available to a polyglot population, as in India, it does not create a burdensome civil pension roll—such as is found, for instance, in England—and it solves the problem of both operating and maintenance labor shortage, since it will function without attention for days, possibly weeks, before it fails completely. It affords prompt disconnects.

The ideal system of the future will perhaps operate both ways, i.e., either with the dial or the human operator, at the subscriber's option, or possibly with human operators during business hours only, or again with the dials as stand-by equipment in case of labor shortage.

For small installations, such as private branch exchanges, community automatics, and satellite exchanges, both full automatics and remote control semi-automatics are highly regarded.

It is noticeable that the unskilled subscriber operator is extremely slow and prone in error in dialing numbers of six or more digits. On the other hand, the manual system is much slower in multi-office exchanges than in single units, and the number of errors is doubled, due to the interposition of a "B" or trunking operator, whereas the trunking of calls in

automatics and also in semi-automatics does not increase appreciably the time or error *due to the central office.*

Calculagraphs.—Accurate and convenient timing devices should be installed in order that the toll charges may be just, and that the service may not be unnecessarily delayed.

The time stamping and charges must be legible. Toll tickets bearing charges should be kept on file for six months, and the information should be promptly available to all patrons on request.

Directories.—Accurate and convenient directories in the hands of the subscribers are essential to good service. They should be issued oftener than once a year, should be conspicuously dated and old directories should be removed. Serious errors should be corrected. The type preferably should be larger than the six point Gothic set solid in four columns now used in large cities. The business, or "residence" and street address should be given and abbreviations should be intelligible. Advertising matter in directories should not be allowed to interfere with the subscriber's convenience. They should contain rules governing service, authorized local and toll rates and other informative matter. Additional copies for replacements should be available, and pay station copies should be kept in good condition.

Plant

Transmission.—Lines and equipment should be so constructed and maintained as to eliminate, as far as practicable, all cross talk and noise resulting from leakage and induction, and to insure good transmission.

Talking sets should attain the moderate standards in volume and quality of the well-known Western Electric No. 223 transmitter, No. 13 induction coil, and No. 122 receiver, or in transmission miles 4.5, .5 and 3.5 miles, respectively. A transmis-

sion mile is defined as a mile of No. 19 B & S copper cable pair in single wrapped loose core paper insultated cable.

Local transmission should not be more than thirty transmission miles. Long distance service must equal this standard to be "commercial." Subscribers' loops should measure not over 1200 ohms with an allowable leakage of not worse than 20,000 ohms.

Reliability.—"Whatever else fails, the telephone service must not fail." Since the continuity and reliability of telephone service may not be put to the proof of breakdown tests, these factors must be evaluated by plant inspections.

Outside Construction.—Outside plants should be thoroughly constructed according to the best and most recent practice. (See handbooks of the American Telephone and Telegraph Company, the Independent Telephone Association, Bulletin 112 of the National Bureau of Standards, technical journals and text books.) A large per cent of the wire mileage of local plants in towns of 10,000 population or over should be laid underground. When streets are paved the cable should be laid in vitrified clay conduit or its equivalent, of ample capacity for growth, according to a fundamental plan which should be kept on exhibition. This plan should be based on a commercial study, and both study and plan should be revised at least every five years.

Sufficient duct space should be provided in advance of all requirements. A cable fill is desirable of approximately 80 per cent of available pairs. No shortage should be experienced of cable cutouts or of block distribution or of building cable facilities. Aerial construction, soon to give way to underground, may be of a temporary character. Rural lines, now vital to the entire commonwealth, should be constructed with transposed metallic circuits, on poles of cedar, chestnut or other enduring timber or material.

Trimming.—All trees should be trimmed so as to clear the wires in all directions, of a two wire line by a distance of two feet and of wires on cross arms by at least four feet, avoiding wanton injury to trees.

Railroad Crossing.—This subject is covered in most states by statute. It is often cheaper and safer to go under a railroad track.

Electric Protection.—A high standard of protection of cables at both office and outer ends against foreign currents, lightning, etc., is imperative. Subscriber's station protection of approved character and location is required on aerial loops of more than 500 feet. This applies to all rural subscribers' stations. All central office equipment must be fused and protected according to the best practice.

Fire Protection of Central Office.—Every practical precaution must be taken to protect employees and apparatus against fire. All cross connecting wire must be flame proof. Sand in pails, asbestos blankets and tarpaulin switchboard covers must be provided at all common battery exchanges.

Chemicals from extinguishers and streams of water, however, are highly injurious to electrical apparatus. In towns of 10,000 or more population the exchange buildings should be highly fire resistant, and the exposure should be minimized. Adequate fire escapes, and fire drills are imperative.

Subscribers' Station Installations.—These should be clean, should conform to specifications, and each should bear the station number, and should have a copy of the current directory. (See also sections on "Transmission" and "Electric Protection" above.)

Exchange Apparatus.—On this topic Bulletin 112 U. S. Bureau of Standards should be consulted.

Exchange Ringing Equipment.—Common battery exchanges should be equipped for automatic periodic ringing. Magneto exchanges should have power generators or interrupters. More than one source of ringing current should be promptly available at all exchanges.

Party Line Loading and Ringing.—According to long-established practice not more than four subscribers should be connected on any local exchange line, and not more than ten subscribers should be connected on any rural line having a length of five miles or less.

In the writer's opinion all party line ringing in town should be selective—even eight party selective ringing is now feasible. Five or even six party service with full selective ringing should be employed to discourage too great a preponderance of party line subscribers, rather than four party semi-selective or non-selective service, which imposes an inexcusable annoyance on the entire public. To avoid discrimination, four and five party lines should be loaded to a minimum of three stations even if necessary at the frame. Rural metallic service should be rung semi-selectively at the worst.

The vital importance of good rural service to the entire commonwealth, together with the inadequacy of the income from it and its excessive unit cost, prompts two suggestions: First, that it be classed as toll service in exchanges of less than perhaps fifty lines, and state toll rate schedules be authorized which will offset the resulting deficit, or, second, that some sort of state subsidy be granted to rural lines conforming to certain standards. It is well known that the rural mail service is not self-supporting.

Adequacy of Equipment.—Adequate cords, inter-board and inter-office trunks and links between automatic sections should be provided to reduce the normal busy hour, normal holding time congestion to one busy per 200 calls. There

should be no "busy's" or delays on account of lack of toll board equipment.

There should be no shortage of spare switchboard facilities to take care of new business. For individual and two party subscribers a discontinued number in the current directory should not be considered spare or reassigned. Magneto service should be considered obsolescent in towns of 1,000 or more subscribers' stations.

Adequate Toll Facilities.—Sufficient toll circuits should be provided so that the normal busy-hour delay in completing a toll call between two directly connected offices should not exceed one hour. A single toll circuit is considered capable of handling six calls per hour or fifty calls per day. As circuits are added the efficiency of each is increased. At least one trunk-line, either direct or switched, with which no subscribers' instruments are connected should be provided between each two towns in which exchange switchboards are operated.

Extensions of Local Service.—Service should be extended to all applicants within thirty days unless by consent of the regulatory body. A utility should not be required to furnish facilities and service at the standard rate if the cost is much above the normal for that class of service.

Maintenance

Routine Tests and Inspections.—Each telephone utility should make such tests and inspections of its lines and equipment as may be necessary to insure the maintenance and operation of such lines and equipment at a high standard of efficiency.

Emergencies.—Every telephone utility should make reasonable efforts to provide for meeting emergencies.

Interruptions to Service.—There should be no complete outages of the central office. Single cases of trouble inside the

central office should be cleared within an average of 15 minutes. Serious outside single troubles within the city limits should be cleared within 90 minutes. A howler circuit should be used to notify subscribers of receivers off the hook.

The calling subscriber should be advised verbally or by signal if the desired line is out of order. Rural scattered troubles should be cleared in 24 hours after being reported.

After a serious line break or cable failure service should be restored within 24 hours. After complete destruction of a toll lead, service should be restored within 48 hours, unless in regions of extreme natural obstacles.

Second and third alternative toll routes should be available between important centers.

Wire Chief's Records.—Every telephone exchange should maintain an accurate record of all complaints, interruptions or irregularities of the service, such record to include the date and time the trouble was reported, the nature of each complaint or irregularity, the duration of same, the action taken to clear the trouble and the date and time such trouble is cleared. A record of routine tests and inspections should be kept.

Complete maps of underground, aerial, rural and toll plant should be maintained and corrected up to date. Cable assignments and terminals, also switchboard assignments and terminals, should be on record. The condition of cable pairs should be noted.

Arguments Against Fixing Standards.—Public Service commissions have made little progress in setting standards for telephone service. L. H. Kinnard, President of the Bell Telephone Company of Pennsylvania, argues against such standards as follows:

> The idea of regulation neessarily includes, as a matter of principle, a review of the character and adequacy of the service regulated just as much as it includes the consideration and

the exercise of responsibility on the part of the regulatory body with reference to rates, sale of property, etc. I would not question the responsibility of a commission to review service conditions or to issue orders respecting service under certain circumstances. This applies to all utilities under regulation. The method, however, by which this responsibility and authority are exercised must be determined upon by the consideration of practical conditions and will naturally differ for the various utilities; it will probably differ for different parts of the service of the same utility, or at different times. It would be very burdensome, unduly expensive, and rather subversive of good telephone service, as well as very embarrassing to the regulatory body, to attempt to exercise its responsibility and authority in matters of telephone service by means of the establishment of specific standards.

There is obviously no simple test for telephone service. All proposals for standards of telephone service include standards to be applied to a considerable number of separate subjects. My observation has been that where such a situation is met, to establish standards for a great number of separate parts is not only misleading, but by its influence toward rigidity, retards progress. In popular parlance, it easily lends itself to the situation where "alibis" are of as much interest as results. We have found in the management of the telephone business that where certain technical standards of performance are used in the detailed operations, we can never allow the attainment of those standards to be used as demonstrating the existence of satisfactory service or vice versa.

The establishment of rigid standards in telephone regulation, certainly at this stage of the art, inevitably involves a confusion between standards of results and the methods of appliances for producing results. There can be hardly any question that where the character or results of service are not affected, the method by which the results are attained is purely a matter of management and not one of regulation. In a situation such as ours is at present, where it would not be practical in significant language to state standards of service except in terms of methods of production, it would not only be embarrassing to the management of the utility and to the regulatory body, but would dangerously interfere with prog-

ress in production methods and in the improvement of the standard of service itself. It is easy to see how this would be so, for if a standard of service is stated in terms of the devices to be used or the methods to be employed, then that part of the organization expected to secure improvements has its horizon always limited by the consideration of a device or method that may be assumed to be good enough merely because it was officially satisfactory at the time of its adoption.

We have had ample experience to demonstrate that even in technical management and supervision it is very important to avoid too many definite standards of accomplishment. If this is not avoided, a very burdensome and excessive cost is incurred in management, not only on account of the numerous reports and analyses that are required or encouraged but also on account of the expense that is automatically engendered by the attempt to secure, in advance, a uniform attainment of the standard, i. e., to avoid either exceeding the standard result or falling short of it. This is very unfortunate since under favorable circumstances the standards could be exceeded for a temporary period without cost and without a recognized improvement in service from the users' standpoint, whereas under unfavorable conditions the service may fall short of the standard without any appreciable deterioration from the users' standpoint, while very serious costs would be involved under the adverse conditions in maintaining the standard. The practical differences between the results would not be noticeable or important to the public, but as soon as results are measured with reference to an arbitrary standard, the differences in conditions are not only exaggerated but have to be recognized and the final effect tends to be a very great increase in cost to secure uniformity of results under all conditions without there being, in fact, any real improvement from the standpoint of the user. It costs a great deal to slow-down suddenly on the down grade and it costs a great deal to speed up rapidily on the up grade; standards have to be assumed on the basis of level or normal conditions.

Another objection to the adoption of standards of service in the telephone industry is the important one of its effect upon the morale of the working and subordinate supervisory forces. The adoption of standards necessarily requires a close

acceptance of the standards as a governing policy for the general management. At the present time any standards must be incomplete and misleading, as they cannot possibly take into proper account substantial differences in conditions. The carrying out of a policy based on certain rigid standards inevitably requires that where the job meets the technical standard requirements, it would be designated as a good job; and where it does not meet the technical standard requirements it would be known as a poor job upon which supervisory work has to be done. The subordinate supervisory forces and the working forces themselves, thoroughly understanding the conditions, would recognize the inadequacy and the misleading character of the tests that would then be applied to performance, and the effect of designating as "good service" that which is merely technically good under favorable conditions, and as "bad service" that which is merely technically bad under unfavorable conditions, without taking into account the general and over-all character and quality of service, would be unquestionably bad and would react, of course, on the service itself. We find it necessary in practical operations to be exceedingly careful on this point and not to use standards for one part of the job that may be easily susceptible to measurement if it is not feasible to adopt standards for another equally important part of the job not susceptible to measurement. To do so inevitably results in a lack of balance and bad service, and the discouragement of those who are willing and capable of doing the best over-all job.

CHAPTER VII

BASES OF RATE MAKING

By C. W. Koiner

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Reasonableness of Rates.—Under present-day conceptions our utilities—gas, water, electric, etc.—are operated or should be operated primarily to perform some definite public service. Even when the utilities are privately owned and operated, the social ends to be served are paramount to all others.[1]

Similarly it is a mistake to take a too legalistic line of approach in seeking the bases of rate making. The Constitution does prevent the appropriation of private property even for public ends "without due process." Therefore, rates must be fair and reasonable. Such is the acknowledged common law and public utility commission requirement, and certainly one of the elements of reasonableness is the recognition that existing schedules should be adapted rather than revolutionized. Without being paradoxical, it might almost be said that simplicity and ease of application are ends paramount to logic. Public utilities have the public as their consumers, and compli-

[1] L. H. Kinnard, President of the Bell Telephone Company of Pennsylvania, says "The error made in nearly all papers on the subject of rate making, is to overemphasize service objectives in contrast with profits. Assuming that the effect of regulation is to prevent extortionate profits, it cannot properly be said that returns should be subordinate to service results. The view that they should be, which has been held by many writers outside the utilities, and by some of the commissions, is perversive of good service. Assuming that grossly excessive or extortionate profits are for all practical purposes eliminated from the field of possibility under regulation, to say that service results should be subordinate to profits, is the same as saying they should be subordinate to wages or the price of materials. It is necessary that fair wages be paid to employees, that fair prices be paid for materials, and that fair profits be paid to investors as a prime consideration. Unless these things are done, good service and proper expansion of service cannot proceed. A depletion of the working force, the use of insufficient or unsatisfactory materials, and the failure to secure an adequate supply of capital on fair terms, will do more to limit service, either from a technical or social standpoint, than any likely errors in rate making. And the most serious error in rate making is that which will overextend the service, producing—even for temporary periods—a financial limitation affecting any of the three factors fundamental to the production of service. The effect of even a temporary failure of credit, whether it be with suppliers, the labor market, or investors, takes a long time to correct."

cated schedules are quite as unintelligible to the average citizen as the intricate "cost analyses" [2] upon which they are sometimes based. Such schedules may be eminently "fair," but not reasonable in achieving the more important social and economic results desired.

Now, we can hardly apply an abstract standard of justice to rates. When we say rates must be reasonable, we mean reasonable—in order to accomplish *what result?* In the first place, we must eliminate the object of charging what the traffic will bear, or of securing the highest possible net profit, or of securing the greatest rate of return to the investor, because, as said above, the fundamental purpose of a public utility is to render a public service—indeed, to render the *greatest* public service is consistent with fairness to the investors who furnish the means for executing the agency. But unfortunately, this public agency, endowed with valuable franchise and eminent domain rights, has been privately operated to a large extent, and private interests have followed the natural tendency to secure maximum results, heedless of the social reason which justified their special privileges. Such maximum profit schedules, however, we have inherited. Out of them it is the duty of the commissions in the transition period, to develop as easily and smoothly as possible a system based upon actual cost of service as an ideal foundation.

Sound System of Rate-Making.—Up to date the elementary problem has been to establish rate bases of valuation and fair rates of return, because profit is the prime aim of the utility investor, and every weapon is brought into play to resist any attempt to diverge from this result of maximum profits. On the other hand, the interest of the general public is diversified and not well protected, and it is the function of an able

[2] In the early days of cost analyses the supporting data was too frequently assembled in such a way as to be far from convincing. In fact these first efforts towards cost finding were so complicated as to be worse than useless. For the modern approach see Chapter IX on "Cost Finding as an Aid to Effective Management."

public service commission to care for the general public and to compel the rendition of the greatest possible service at the lowest possible cost. We will assume, however, in the succeeding paragraphs that both the rate base and the rate of return are established, and confine ourselves to a discussion of the making of the rate in order to secure that fair rate of return.

Speaking generally and not overlooking some marked exceptions, the tendency of the utilities has been to secure the maximum rate of return. Without the stimulus of a healthy competition, they have been slow to realize that it is volume of product and this widely distributed which leads to greatest prosperity, just as in most other businesses. Moreover, it is just this volume of business, with its return in comfort and satisfaction to society at large, which is the reason for the utility's operation. A sound system of rate making, therefore, must take existing rates and develop business to the utmost point where there will still be the required net profit, diminishing down to the fair return on the rate base. What traffic will bear is the upper limit, and cost is the lower limit, remembering always that unit cost is somewhat variable, depending upon volume, kind of business and other considerations.

Minimum Charge.—We start with a past development of block rates for gas, water and electricity. The minimum rate, or the rate for the lowest block, charged irrespective of use, has its basis in reason, because all modern cost accounting recognizes that there are certain tolerably constant costs "per customer" in the way of reading meters, clerical work, etc., and certain other costs which should be spread over all consumers. In this last category there is included frequently a charge for "readiness to serve," or "standby-ability," or a "power to meet the demand," however phrased it may be by the company claiming it. Then finally, and of course by far the most important, there is the consumption, or use element, representing

a consumer's fractional portion of the strictly operating or production costs. As an illustration, a 50 cent minimum might include 25 cents for the customer charge, and 25 cents for the demand charge, and the rate then start with the actual consumption. But even in a municipally operated utility, where citizens might be expected to appreciate that the utility is operated for public service, it is difficult to convince consumers of the propriety of a minimum charge when no service is used, and the more complicated segregation into the above three elements is still less popular.

On this point Carl D. Jackson, formerly chairman of the Wisconsin Public Service Commission, and now counsel for the National Electric Light Association, says:

> The element generally designated as demand or capacity cost is most neglected in rate schedules and little understood by the consumer; yet the neglect of these costs as a factor in rate schedules must result in unjust discrimination among consumers. This cost element is not in proportion either to the number of customers, or to the quantity of the commodity taken by the customers. It consists, of course, among other costs, of the fixed charges, taxes, retirement cost, the fair return to the investor on that property necessary to serve the public and which is not directly allocated to the customer himself.

Willis J. Spaulding, Commissioner of Department of Public Property, City of Springfield, Illinois, says:

> The "ready to serve" charge theory, while valid up to a certain point, is greatly exaggerated in its application. As an illustration, suppose it were applied to railway traffic. The Pennsylvania R. R. has built its lines into or through the City of Philadelphia to provide transportation service. A full working crew is employed to handle the business. Trains run at regular intervals and the expense of service is incurred by the railroad company, whether the people of Philadelphia use it or not. Therefore, "a ready to serve charge" should be collected from every person in the city each month or year.

If one objects that he used no service, the answer would be: "That is your fault, because the service was provided and ready to be used." This is the argument of the Electric Company. Now, there is no such charge made by the railroad company; on the contrary, there is a carload rate and a less-than-carload rate on freight, and the rate is the same whether the customer makes a shipment once each day or once each year.

It is argued that whenever an electric consumer is attached to the lines, the utility is obligated to set aside a portion of its entire plant equal to the demand, or the latent demand, of said consumer. Yet, is it not also true that when a certain area is covered by electric lines, the homes or the businesses which are not actually connected may and do demand service at their option and the utility is bound to serve them? Is there not almost, if not altogether as much logic in requiring all property which might demand service but which is not yet connected to the lines to pay a service charge, as to apply it to those only who are connected?

A "ready to serve charge" sufficient to cover the investment which is actually set aside for individual use, is valid, but to attempt to apply it further is mere theory and speculation.

Ideal Theory of Rate-Making.—Now as an ideal toward which to work, it may be held that every unit of service should yield a profit above cost including in cost the three elements mentioned above. It is not in the public interest that this theory be applied too rigorously. Every merchant and every manufacturer knows that on some lines and especially at some seasons it makes for the general prosperity of the enterprise to shave profits and even to sell at a loss. In the same way service even below cost in the utility field might be justified by the expectation of future business which would eventually reduce rates for consumers who would meanwhile bear the burden.

After all, the public interest is the deciding factor. It might be in the public interest, for instance, to grant a differential in

favor of electric current supplied to the farming community. But such reduced or below-cost rates cannot be advocated with any purpose of inducing a change from independent production by consumers, or from one form of service to another (e. g., gas to electricity) and then, when control is secured, raising rates to yield abnormal profit and so recoup the initial loss. Possibly also, temporary situations might arise where rates considerably above the normal rate of return might be advisable. A comprehensive program of development might call for the construction of a plant far in advance of existing needs, but one which would really be an economy in the long run because of the eventual decrease in unit costs so made possible. Meanwhile it would seem that the utility must be recompensed and not be compelled to wait until the entire capacity is utilized, and so the present consumers probably should pay a rate higher than the one calculated to yield a normal return of profit if based on the cost of operating a plant no longer than existing needs might require.

As stated in Chapter IX on cost finding, the present functional cost system in general use throughout the utility world must eventually give way to a job cost system, and it would seem that before we can condemn a rate as unfair or unreasonable, we must know something about the job cost. Cost accounting is useless unless it does lead to action based upon the finding. It appears to be an incomplete decision of the Pennsylvania commission that *because* only 28.7 per cent of a utility's revenue comes from the consumption element in a schedule comprising (a) customers charge (b) demand charge and (c) consumption charge, the schedule itself must be inequitable (City of Lebanon *v.* Lebanon Gas & Fuel Co., No. 4111, June 13, 1922). This low percentage for consumption cost indicates that the schedule is wrong, but it is not necessarily so on its face, and the light shed on the situation by an accurate cost analysis is not to be disregarded.

Uniformity of Charge.—The second element is uniformity as between all users under the same circumstances. Any other theory violates our most cherished ideas of democracy. But every small consumer, upon increasing his consumption, unconsciously feels that he has incurred less cost, per unit, to the utility. In other words, increased use makes different circumstances. Likewise, the difference in kind of use has far-reaching effects upon the wisdom of a rate. Originally electricity was a substitute for gas, but it soon became apparent that during the daytime any revenue above cost for use of electric energy for power purposes would be almost entirely "velvet," or, technically speaking, the valley in the load curve is filled up, without increasing the peak load. The use of current for power has, therefore, developed to become in a way co-ordinate with that for illumination, and the continuing growth of modern industry almost necessitates the dual object for every electric utility. The industrial use should, therefore, contribute jointly with the illumination use toward the demand cost (or the fixed charges) as more popularly understood.

So enormous, however, has the power use become, that a small profit per kilowatt hour means a large contribution toward the fixed charge, and it cannot be denied that a lower rate of profit than in the case of domestic lighting consumers actually permits a reduction in the domestic rate itself. Of course, low power rates may mean cheaper industrial products which might benefit local purchasers, but there may also be created differentials as between manufacturers in different communities which would merely increase the profit of the local manufacturer without otherwise increasing the local prosperity. The writer, therefore, believes that to the utmost possible extent the rates for industrial, commercial and residence or domestic use should show the same rate of return above cost per unit.

Lowering Rate to Certain Classes of Consumers.—If plants were operated separately for industrial, commercial, and residence business, each such plant probably could be operated to produce a uniform profit. But as a practical matter the plant serves several classes and any increment of business above cost for the increment increases the net profit and makes possible a reduction in rate. The more business that can be secured (to the point of saturation) at a profit, the better it is for all consumers. Now suppose existing rates are fixed to give a uniform rate of return above actual cost for each unit and class of business. It is evident that some independent producers or existing consumers are just on the margin of doubt as to whether the service is valuable enough to them to pay the existing rate. A slight reduction to them will pull their business and increase the net profits to the utility. We are, therefore, confronted with the situation that in the interest of all consumers we must calculate the value of the service to these consumers and play for their additional volume of business.

To express it by figures, suppose a plant furnished 1,000,000 kilowatt hours for domestic lighting and 1,000,000 kilowatt hours for industrial use, and that a cost analysis shows a 4 cent cost per kilowatt for the former and a 2 cent cost per kilowatt for the latter. Using a 10 per cent uniform return for illustration would give rates of 4.4 cents and 2.2 cents, respectively. Now let us reduce the latter rate to 2 cents. Without increasing the maximum load, the total industrial business may increase from 1,000,000 kilowatt hours to 2,000,000 kilowatt hours, and the total costs go up only half as much (possibly by 1,000,000 times 1 cent). The new costs as now spread over the total consumption might be 3.9 cents and 1.8 cents, respectively. The rate of profit for the domestic lighting would be .5/3.9 or 12 per cent, and for industrial use .2/1.8 or 11 per cent. But the *amount* of the net profit has now gone

up, due to the increased volume, so that it would be possible to reduce the domestic rate and still yield a fair investment return.

Due to this favorable effect of the size of the industrial load the domestic consumer is probably not warranted in complaining upon any ground that the rate of profits on his consumption is double that on the industrial use. In this connection, however, it must be borne in mind that a decrease in the domestic rate may similarly stimulate consumption and justify a lower industrial rate.

Something of a similar nature has developed in the gas utility. The original purpose of illumination has had coordinated with it the use during the daytime of gas for heating purposes, and in some sections of the country the use for illumination has largely given way to the more satisfactory lighting by electricity. But it is still true that lower rates may be justified to users during the other times than the peak load period. The lower rates to bakers during the early morning hours afford such an example. Of course, "peak load periods" sometimes are easily shifted and caution must be used in the granting of peak differentials.

"Block" Rates.—From the above explanation it will be seen that differences in rate to classes of consumers do not necessarily mean unfair discrimination. Carrying the analysis further, it can be said that the same principles apply also to increased quantities of the service used by the same consumer. A consumer may use 100 kilowatt hours for lighting at 6 cents, peak load. The 101st kilowatt hour he might be willing to use at 5 cents but not at 6 cents, or he might desire to install electric ranges, heating appliances, toasters, fans, etc., if he could secure a 4 cent rate. If the cost for the additional kilowatt hour is less than 4 cents, the utility derives a profit. So obvious is this situation that some form of *block* rates is prevalent almost everywhere, and it is justified not alone from the

standpoint of caring for the difference due to customer cost, but also because of the direct effect upon volume of business and resulting profit. Block rates must be so graduated that one customer using a given quantity does not pay a smaller sum than another using less quantity.

Let us examine other utilities in this connection. In the water and gas utilities, the larger the consumption, the smaller is the "customer cost" per unit consumed, and the larger the profit, ordinarily, with an increased volume of business. And in the same way that metered service should be the rule in electricity, because otherwise as between consumers the bills may be disproportionate to consumption, the water and gas service should be metered under a block rate system. The writer believes that the block rate system is preferable to the discount system because easier to understand and to apply.

In the telephone industry the situation is somewhat different because metering involves considerable expense, and an increase in the number of calls and in the number of consumers available to be called may involve a disproportionate increase in cost of the service per call. The Bell Telephone Company of Pennsylvania contends that:

> Costs do not and cannot control or even be the dominating factor in making schedules of rates to be charged for service . . . . the value of the service to each consumer is dependent upon the number of other consumers he can reach and the quality of their service . . . . so that each telephone user has a vital interest in and contributes to the cost of the service of every other telephone user. This mutuality obtains not only between the users in each locality *but between localities.*

These words of Mr. L. H. Kinnard, the president of the Company, evidence the desire of telephone utilities for uniform state-wide rates. But costs may vary considerably between communities. Each community should within reason be given the consideration due to its situation. Of course, there is an

interlacing of costs, but after all, the average telephone user is comparatively infrequently affected by the availability of other users beyond his immediate vicinity, and toll rates can care for the situation, so that the fundamental principle ought to obtain as in other utilities, with a pro-rating of joint costs between communities.'

Other Principles Involved in Railroad Rate-Making.—Cost of service in the railway freight business even when known seems well-nigh impossible of use—at least of wide-spread use—in fixing rates. Long ago, for instance, the Interstate Commerce Commission recognized the fact that through rates must often meet water competition and that bulky commodities must have a low rate to get the business. The same is often true in the case of transportation by motor buses or street railroads; unless the rate can meet competition, the business will not be secured. Indeed, in some cases the fact that there are built-up industries which have developed because of past rates, has been allowed as an argument for continuance even though the rate might not be justified if examined from the standpoint of cost alone.

This situation in railroad rate making has exerted an unfortunate influence on all utility rate-making. The margins of possible profit in railroading are less, costs are more static, and the effect of an increase in rate in diminishing volume are more immediate than in other utilities. The situation in the electric field is markedly different. Here there are such great margins of profit, and opportunity for further reductions in cost as to offer no excuse for the maintenance of existing schedules on the ground of protecting vested interests—either public or private.

Reserves to Stabilize Rates.—A disputed question in rate-making is the establishment of a reserve under control of the

commission, to stabilize rates between years. If during lean years rates are figured on cost, the unit costs are likely to be high, due to smaller demand, and the recognized fact that an increase in business does not mean a proportional increase in unit cost, puts a still greater burden on the consumers during lean years. Of course, in practice, commissions can hardly be expected to make far-reaching hasty changes in rates due alterations in unit costs. It is also true that the general public is a long-time consumer who desires insurance against instability in rates. Surely, however, if revenues do not come up to a commission's anticipations, the utility should be required to make an emergency application for increased rates, rather than to saddle on a succeeding year the burden of previous loss. In fact, several commissions have attempted to care for the situation already by an automatic alteration in rate to correspond with changes in prices of coal or of oil (when oil is used for making gas, as in California).

Now, should a commission deliberately include a contribution toward such a reserve? To do so is in a way to make a present to the utility, because although a lean year may deplete it, the next year must see its re-establishment and upon dissolution the corporation will have a fund which the public has created. If the object is to equalize earnings and dividends, there is no reason why the utility itself, out of rates calculated not to include such a charge, should not lay aside the reserve.

Profits From Economical Operation.—Should increased profits accrue to the investors upon reductions in rates? The danger is not now imminent, but it may happen that as commissions become more zealous in the protection of the public, they may lose sight of the advantage to be gained by inciting the utility to the highest efficiency. Massachusetts developed its sliding scale for gas rates, and possibly some such scheme is possible during a period when costs do not essentially change.

If the utility be considered an agency of the state, it should be protected in its investment, but the tendency is to pad valuation and expenses if there is a reasonable anticipation that they will be allowed.

After the rates are once set, whatever can be saved by economical operation should go to increase dividends as a premium for efficiency. But the utility is monopolistic in character and increased profits may come from the mere growth of the community alone and produce an unearned increment to the investors. Wise management, however, may cause the saving, and unless we contend that improvements must be made because of the agent's duty, we may fail to do justice to the utility. This points to a higher rate of return when a utility is progressive. Unless there is some such inducement, regulation may be too drastic and the utility become discouraged by feeling that however strenuous their efforts at economy and progress, the reduction in rates compelled because of that very efficiency will wipe out their reward.

Commissions should wisely temper their power to chastise, with their duty to cherish. The writer believes that the hazard of investment has been over-emphasized, and continuity of investment should be insisted upon. Ordinary investors are able to take advantage of market fluctuations, and conversely, to diminish losses by selling out on a declining market, but utility investors consecrate their capital to a public use, which is a long-time use. They gamble, under the present operation by commissions, upon a rate of return which will—perhaps sometimes in lagging fashion and at other times with accelerated speed—generally follow the market rate of return on investment.

CHAPTER VIII

HOLDING COMPANIES AND THE AUTHORIZATION OF NEW CAPITAL ISSUES

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The holding company has been the principal vehicle by which small and scattered public utility properties have been brought together into larger systems under combined management and control. In this discussion, the term "holding company" will be used more broadly and loosely than its strict legal sense—a corporation controlling another corporation through stock ownership. The idea will be expanded to include also control by leases, contracts, and all financial arrangements by which effective unification of control is brought about over properties owned by several companies.

The Older Urban Groups

Two Classes of Combinations.—For the purpose of this report, it appears desirable to consider the holding companies in the public utility field under two heads: (1) the earlier holding companies through which the larger urban public utility systems were established, and (2) the later inter-urban systems employed to combine the utilities of smaller cities. While the general characteristics of the two groups, as well as the processes of effecting the combinations are essentially the same, the present problems arising from them are considerably different. Moreover, in the first group, the process of combination is for the most part completed, while in the second, it is actively proceeding and is in the course of formation. Conse-

quently, in the first we cannot escape the problems created by past consolidations, but in the second, we can avoid the recurrence of difficulties through carefully prepared public policy in dealing with the developing systems.

Philadelphia Rapid Transit Co.—In the first group, the holding company came into public prominence chiefly through the combination of the earlier street railway companies. The same process, however, was employed about the same time in the combination of earlier gas and electric companies, and other utilities. The process is excellently illustrated by the development of the present street railway system in Philadelphia operated by the Philadelphia Rapid Transit Company. It has practically complete control of all the street railway transportation in the city of Philadelphia, including subway, elevated, and surface lines. It has a total capitalization of $46,423,660, divided into $16,432,000 mortgage bonds and $29,991,660 capital stock, compared with a capitalization of $128,525,000 of all the companies whose properties are operated in the system. It both owns physical properties and controls several companies through stock ownership, but the bulk of the lines have been leased from the Union Traction Company for 999 years. The latter company was organized in 1895 to acquire the capital stock or to lease the properties of the three principal systems which had previously become established: (1) The Philadelphia Traction Company, (2) the Electric Traction Company, and (3) the Peoples Traction Company. These companies had become established through successive combinations of leases and acquisition of stock control during the eighties and early nineties.

Street railway transportation in Philadelphia, as in all larger cities, began in the granting of a large number of franchises to small horse car companies. Gradually, as construc-

tion and operation continued, and as the area and population of the city expanded, the natural development was consolidation of the numerous small companies into larger and larger groups. The chief factors in this process were (1) competition, which resulted in the absorption of the weaker companies by the stronger, and (2) the direct financial advantage of consolidation. Each step in the unification usually brought about substantial economies and reduction in operating expenses, but also furnished better service and consequently produced great increases in traffic, which, too, brought about relatively lower operating costs. The inevitable result was combination and re-combination, until the present unified system became established, wherein all the properties are operated by a single company through leases, stock ownership, mergers, and consolidations.

Pittsburgh Consolidations.—The development of the traction system in Philadelphia was more or less paralleled in all the larger cities, and the same course took place in other utilities. In Pittsburgh, not only has there been a consolidation of traction, but the same holding company controls also the production and distribution of electricity and gas. The United Railways Investment Company, among other properties, controls the Philadelphia Company, which owns the entire capital stock of the Pittsburgh Railways Company—a combination through stock ownership, merger and leases of practically all the street railways in Pittsburgh. But the Philadelphia Company owns also the common stock of the Duquesne Light Company, a combination of electric power properties not only in Pittsburgh but a larger part of the surrounding industrial territory. The Philadelphia Company owns, further, the Consolidated Gas Company of the city of Pittsburgh, a combination for the production and distribution of artificial gas; also controls most of the natural gas sold in Pittsburgh

and the manufacturing towns along the Monongahela and Allegheny rivers. Besides these properties, the Philadelphia Company controls coal mines, gas wells and oil lands. There is thus an extreme combination of street railways, electricity and gas, together with sources of supplies, all under the same control.

Economy vs. Over-Capitalization.—As already suggested, this development of large public utility systems was based upon natural causes and has been a sound economic growth. The operation of a large number of the small independent properties was too costly, and the service was poor. Modern municipal life required the effective combination of the numerous small properties into substantially the systems which have actually been established, but the processes of combination brought about many evils and public problems. There is not space for extensive discussion of these problems because the greater part of the report will be devoted to the second group of inter-municipal companies.

The principal evil in these earlier developments was the large over-capitalization and the excessive fixed charges placed upon the properties. In nearly all of the large municipal systems there is an altogether disproportionate amount of bonds and stocks outstanding, or excessive rentals paid upon leased properties, compared with the reasonable investment actually required in the proper development of the systems. In spite of the advantages of the combined properties, operation has usually been handicapped by the excessive fixed charges and the efforts to pay dividends upon the common stock outstanding. The management in struggling with over-capitalization has been constantly impelled to skimp service, cut down on maintenance and renewals, keep up rates to the public, and particularly not provide sufficient reserves and surplus against periods of low earnings. This condition principally

accounts for the financial difficulties of the companies during recent years. The companies could not meet readily the increasing costs; they did not have adequate reserves and surplus; and could not raise rates sufficiently because they were already too high and public opinion had been alienated during the years when service should have been improved and rates reduced.

The over-capitalization was perhaps in most instances inevitable. We must consider the laws, the state of public opinion, together with other practical considerations controlling when the combinations took place. The control of existing companies usually could be obtained only through the issuance of disproportionate amounts of stocks and bonds of the holding company, or by the payment of rentals far beyond a fair return on the investment in the properties. Moreover, frequently if not usually, after consolidation the properties had to be substantially reconstructed or re-equipped, and consequently required the issuance of additional securities to pay for the work. In each successive step in the combination, as illustrated excellently by the Philadelphia Rapid Transit System, there was a heavier and heavier burden of over-capitalization or excessive rentals placed upon the properties. Unified control could not be acquired in any other way.

But, besides this inevitable cost of consolidation, there was also in nearly every step various financial manipulation, including huge issues of securities to the promoters, profiting on inside construction contracts, misrepresenting the earning power of the properties, not providing sufficiently for maintenance and depreciation, paying unearned dividends, creating fictitious market values for the stock, and unloading on the public securities at prices far beyond the intrinsic earning power. These, however, are matters easily exaggerated in any case when for the most part the over-capitalization resulted from almost inevitable causes.

Excessive Fixed Charges and a Fair Return.—But, whether due to natural causes or past manipulation, the over-capitalization exists; the excessive burdens rest upon the properties today and form the chief problem of regulation. While the consolidation as such in practically every instance was justified on broad economic and public grounds, the financial burden created by the process has been greatly excessive and frequently beyond the ability of the property to bear. The chief question of regulation, therefore, has been how to treat this over-capitalization inherited from the past. A more or less ruthless procedure would disregard the capitalization throughout and seek to establish only the net monetary investment in physical properties now used and useful for the public service. This, of course, should in general be the rule. Nevertheless the problem is by no means so simple, because if rigidly carried out the rule in many cases would break up the systems which in themselves rest upon sound economic grounds.

If, for example, rates were throughout fixed so as to bring only, say, 7 per cent upon the net investment in physical properties, the result in many instances would be insufficient revenues to pay even interest upon the bonds outstanding and the fixed rentals upon leased properties. If, then, such rates actually continued for any length of time, the company would be unable to pay its fixed charges, would pass into the hands of a receiver, and a disintegration of the system would follow. The practical question, therefore, has been to what extent the evils of over-capitalization inherited from the past, can be reasonably eliminated through rigid rate control, and to what extent some of the over-capitalization must be tolerated to avoid the disorganization which would inevitably follow the disintegration of the system.

Manifestly, no single rule can be laid down. The Public Service Commission dealing with such matters should have the broadest possible powers, with full responsibility to procure

for the public the maximum advantages from the unified system, dealing fairly with the existing security holders, but not permitting unjustified burdens to continue indefinitely upon the public merely because they are due to past processes of finance and organization.

The Newer Inter-urban Groups

History of Newer Combinations.—When we turn to the second class of holding companies, the modern inter-municipal systems, we find in several respects a very different situation. These combinations generally were started since 1900 and have been moving forward rapidly only since 1910 or later. In most cases, these companies have grown up under the eyes of the public service commissions, so that many of the evils of the first group of combinations have been avoided. Moreover, the business standards have advanced greatly, so that many practices of the eighties and early nineties have come under disapproval and have not appeared in the second class of consolidations.

As already stated, the second group consists of the public utility properties of various smaller communities brought together through leases and successive stock control into large inter-municipal systems. In this way, widely scattered properties in several municipalities, and in different states or different sections of the country, are brought together under a single management represented by the holding company. This movement has taken place more particularly in the production and distribution of electric power. From this it has extended to other utilities more or less dependent upon electric power, particularly to street railways.

Typical Groups.—It is impossible to present even a summary survey of the various systems in this second group which

have developed in the State of Pennsylvania alone. For the sake of concreteness, however, it is worth while to present in an illustrative way, a few systems in that state. We may take, for example, the General Gas and Electric Company. This company was incorporated in 1912 in Maine as a holding company. In 1919 it acquired the common stock of the Metropolitan Edison Company of Reading, Pennsylvania, which in turn controls through stock ownership the Pennsylvania Utilities Company of Easton, Pennsylvania, and its subsidiary companies. It controls also the Reading Transit and Light Company, and besides has control of properties in New Jersey, Ohio, New York, and Vermont. In Pennsylvania, it centers in two districts, Reading and Easton, from which its lines extend to adjoining communities, forming the basis of the industrial development in those regions.

Another system is the Penn Public Service Corporation, organized in 1919, a consolidation of Citizens Light, Heat, and Power Company of Pennsylvania, the Penn Public Service Company, and the Penn Electric Service Company. It operates an electric light and power system, serving over fifty communities and covering nearly six counties in Western Pennsylvania, east of Pittsburgh. It controls also the Centre and Clearfield Railway Company; the Conemaugh Power Company, and the Johnstown Fuel Supply Company, which furnishes natural gas to Johnstown and nearby territory. Through a subsidiary it owns coal mines used for the production of power, and one of its large new generating stations is located at the mouth of a mine.

Another system is that controlled by the Lehigh Power Securities Corporation. It was organized in 1917, and owns all the common and non-cumulative preferred stock of the Pennsylvania Power and Light Company, a majority of the stock of the Lehigh Valley Transit Company, and all the common stock of the Wilkes-Barre Company. The Pennsylvania

Light and Power Company was organized in 1920 as a merger of a number of companies operating in the district of Allentown, Bethlehem, Northampton, and the Slatington industrial section—a prosperous and densely populated district of the state. It owns also the capital stock of several subsidiary companies. The Lehigh Valley Transit Company was incorporated in 1905, a consolidation of several companies, and it controls through stock ownership and lease a number of other companies, including the Easton Consolidated Electric Company, which owns several subsidiaries. This large and diversified system controlled by the Lehigh Power Securities Company is affiliated with the Electric Bond and Share Company, which is a financial corporation organized by the General Electric Company, and which has served to bring together under associated leadership a number of holding company systems operating in different sections of the country.

Economies of Consolidations.—As already stated, these newer holding company groups are in the course of development at the present time. They are due to the same general economic forces as brought about the earlier urban combinations. Perhaps the chief immediate factor is that of operating economy. As already stated, these combinations involve principally the production and distribution of electric light and power. The independent companies isolated in the various small communities have been greatly limited in the possible economies of operation. Each company had to maintain its own small plant, was restricted to its own particular territory, and was handicapped in financing. The new holding company groups, after obtaining control, are able to consolidate the demands of a number of communities in a single generating plant, or in several plants distributed according to particular requirements. By this consolidation and better location much larger plants can be used and the most modern equipment in-

stalled, so that the generating costs of electricity can often be reduced by 50 per cent or more. This single economy, due merely to the better utilization of coal and labor by the larger plants, would in most cases by itself be sufficient to justify the consolidations that have taken place.

Incident to this great economy through larger units of electric production has been the use of higher grade of management. The best technical skill can be employed for the larger systems and particularly the combinations of a number of systems. The cost is readily absorbed by the large scale of operation, while in the small isolated plants the expense could not be borne by the small amount of business.

Advantages of Financing.—Closely connected with these economies, is financing the installation of modern plant and equipment. In most cases the small isolated plant cannot afford to install the most modern facilities even if it has the technical knowledge of what is needed; it cannot do the financing. Its operations and earnings are small and it is known only locally, so that it cannot reach the larger financial markets to issue its securities for the necessary funds. By its financial limitations it is compelled to operate as best it can with an equipment that has become largely inadequate and obsolete. The past 15 years have marked tremendous development in power plant equipment with great increases in efficiency, but the smaller companies have not been able to take advantage of these advances because of their financial handicaps and have been compelled to continue operating with equipment of low efficiency. The newer holding companies, however, are able to reach the general financial markets and consequently are in a position to take advantage of the most modern facilities available for electric production.

Perhaps the chief reason for the rapid advance in recent years of these newer holding company groups is the fact that

the smaller companies have been getting into financial difficulties where they faced the necessity of plant renewals, but were themselves unable to make the necessary replacements. This has furnished an excellent opportunity for the newer groups to acquire the properties at moderate or low prices; then after the acquisition the first step has frequently been to scrap most of the existing generating plant and install the most modern facilities. Even where part of the former equipment was left in place for possible use for stand-by purposes the reconstruction had to be pretty complete. But in any event the immediate result was greatly to reduce the operating costs, to improve the service, and increase the demand and volume of the business.

Integration of Manufacture, Financing, and Management.—Perhaps it should be noted that in many instances the force back of these modern holding company groups has been the companies manufacturing power plant and other electrical equipment. For example, as already indicated, the General Electric Company organized the Electric Bond and Share Company. The latter has been instrumental in organizing a large number of holding company groups, mostly electric, throughout the country. The primary motive apparently has been to bring about a rehabilitation of the electric properties so as to replace the inadequate and out-of-date equipment with modern facilities. Incident to this, however, the General Electric Company practically found it necessary to help finance the local companies and enable them to utilize the economies of large units of production and distribution, and also to furnish the most competent technical ability in management. The result is that a large number of more or less independent systems have been developed, all under the financial supervision of the Electric Bond and Share Company, although the latter itself has not necessarily held the stock of the holding company groups.

Every possible economy has thus been utilized. There has necessarily come about almost a complete integration of business—unified control of the manufacture of plant and equipment, the financing, the installation, and the actual management of the utilities.

Distribution of Investment Risks.—These newer systems have further public advantages besides those of economy of production, better service and improved financing. Among these other advantages at least two should be mentioned in passing: (1) the wider distribution of risk for the individual investors in public utility properties, and (2) the stabilization of the business through the sale of securities to the consumers. As to the first, a common plan is to sell the bonds and preferred stock of the local companies to the public; but for the holding company to keep the common stock of the local companies and then to sell its own common stock to the general public. In this way all three groups of securities may be placed effectively upon the investment market—bonds and preferred stock of the local companies, and the common stock of the holding company. The common stock of any local company usually could not be sold on the general market, but when a large number of local properties are combined, especially if different systems in various parts of the country are brought together under the same management, the common stock of the holding company becomes a salable security.

This is especially true when the holding company itself, in obtaining control of the local companies is able to introduce large economies and enlarge the business, and is thus able to create an earning power for its common stock much in excess of the combined common stock of the local companies operated separately. If there is conservative and economical management, if the local properties have not been acquired at too great a cost, and if the properties are well scattered to average

up the diversities of the different communities, a large degree of stability in earning power can be established, so that the common stock of the holding company becomes a good security for sale on the larger financial markets. This, of course, is a general statement which cannot be applied indiscriminately to all holding company groups, and in many cases is only an ideal not attained in actual experience.

Sale of Stock of Consumers.—The second factor of stability in some groups is the sale of securities to the consumers. Perhaps the most common practice is to sell preferred stock of the local companies to the consumers, although there has been no uniform policy. The idea is that the preferred stock of the local company is usually a safe earning proposition to the investors, and at the same time when sold to the consumers it obtains their active interest in the management and prevents undue agitation for regulation and public interference with the business.

This development of selling preferred stock of the local companies and other securities to the consumers must be viewed in general as excellent. It should, however, be carefully controlled by the public service commissions to prevent abuses. While for the most part preferred stock may represent bona fide investment and will bring safe returns to the owners, in many instances it may not be of such high grade standing. Moreover, the issues may be furthered for the purpose of preventing an effective movement for the reduction in rates which otherwise would be justified on the basis of fair return to bona fide investment. In such cases substantial distribution of stock among consumers would create active local opposition against a reduction in rates even though it is justified from the public standpoint. This matter, therefore, ought to be kept in control of the public service commissions, so that no stocks issued to

consumers may be employed to entrench the companies in support of earning values not actually possessed.

Further, it should be clear that the distribution of preferred stock among customers is not in any sense the equivalent of public ownership and operation; nor is it an intermediary step to that end. Moreover direct control is exercised through the common stock, infrequently affected through the preferred; but the common stock of the local companies is owned by the holding companies, which are controlled by large financial interests, so that the actual management becomes even farther removed from the direct influence of the people.

There is no doubt that the development of these newer holding company groups is entirely justified on broad economic and public grounds. It not only should not be prevented but should be actively assisted by the states through the public service commissions, for it is a means of advancing the public welfare. The greater economy of operation, better service, and lower costs, produce a more extended utilization of electric power, and promote more rapid industrial development and physical well being of the people. The present holding company groups may be re-combined in still larger and more completely integrated groups, with still greater economies and public advantages. Ultimately, according to the vision of many engineers, all the groups may be merged in a huge public superpower organization. If there is economy and public advantage in the combinations, nothing should be done to hinder them, but careful action should be taken to prevent the kind of evils brought about in the past by the earlier municipal consolidations.

Tendency to Over-Capitalization.—The chief evil to be guarded against, which probably has already come into existence to a considerable extent, is the old one of over-capitalization. These holding company groups are everywhere active

and aggressive business organizations. Each group is struggling in competition with others to advance its holdings, to enlarge its properties to still larger units of production, and create greater volumes of business, with the subsequent result of still greater economy, and to repeat the cycle of effort for greater size, bigger business and further economies. The competition in system extensions has come to be a tremendous one, so that the tendency is at every point for each holding company group, in order to get possession of a local company, to issue its own securities for more than the local property is really worth, with the result of immediate over-capitalization of the holding company. Then, if as frequently happens, much of the existing property is immediately scrapped and new plant and equipment with greater efficiency are installed, further securities are issued to pay for the rehabilitation, with the result that a large proportion of the securities issued for acquisition may be without actual physical property to support them.

The danger of over-capitalization is an ever present one in the process of holding company development. Unless this is properly guarded against, there will be a constant struggle, as in many of the older municipal systems, to pay fixed charges, and to pay dividends on the preferred and common stock issued against the system. In such cases the immediate economies of operation would be absorbed in supporting the capitalization, properties would be squeezed to pay dividends without adequate provision for maintenance and depreciation, and without surplus and contingencies. The system could not be placed upon a sound financial basis and the public would not get the lower rates which should follow the consolidations and lower costs of operation.

As a practical matter, therefore, it should be the active concern of the state to watch closely the development of these newer systems. It should encourage them, but should exercise in each step such effective control over the securities issued that

the authorized capitalization will not be out of proportion to the investment in the physical properties acquired. If vastly excessive over-capitalization is brought about, we shall have the same problems with these newer groups as we have been struggling with in the large urban systems of the first group. These problems, however, can be largely avoided by foresight and action on the part of the state.

The state should have the full advantage of the highest skill and economy in electrical production and other utilities for the sake of better and cheaper service, and the consequent advance of industrial and social life. So far as can be determined now, this can be brought about only by effective consolidations through holding company groups. The wise state policy, therefore, should be to work actively and harmoniously with these groups along lines of sound policy, on the one hand to avoid the burdens of over-capitalization, and on the other to facilitate consolidations and to bring about the economies and public advantages of the larger scale of operation.

Hidden Profits.—Besides over-capitalization, there is danger that the holding company groups may be used as a means of covering up the actual costs of operation and conveying hidden profits to the security holders. This has been an evil in the older urban systems, and has asserted itself in the newer groups, and will be difficult to avoid, especially where the systems operate in several states in different sections of the country. It can be substantially avoided if the holding companies in all their operations are brought under regulation just as ordinary local companies, including rates, service, accounts as well as security issues. The total amount of investment entitled to a return should be definitely determined, as well as its assignment or apportionment to local communities. Further, all the revenues and operating costs should be completely accounted for, and assigned to localities in the determination of rates.

Inevitably many joint costs will be incurred, and many arbitrary charges against the local service must be made to cover the expenses of the system organization; but all of these costs should be kept in the open and not made the basis of hidden profits to the system.

Summary.—In conclusion, then, public service commissions should exercise special care in dealing with the development of the holding company groups to prevent over-capitalization and financial exploitation of the public. Special care is emphasized because of the numerous and various intercorporate relationships involving different communities, different states and different parts of the country. When new securities are approved, the commissions should be certain that they rest upon full value which will be recognized as entitled to a return in the determination of rates. This should control whether the particular bonds or capital stock rest directly upon physical property used in operation, or upon other securities which directly or indirectly represent actual physical properties. In the last analysis, there must be physical properties as a basis of security issues; and the amount of the issues must not be greater than the investment recognized as entitled to a return from the public.

These matters are technical and complicated; there are so many variations that no precise procedure can be laid down. The commissions, in dealing with these matters, should not be arbitrarily hampered by technicalities, they should always keep clear their responsibility to obtain for the public the fullest advantage of consolidations and to prevent the evils of financial exploitation.

CHAPTER IX

COST FINDING AS AN AID TO EFFECTIVE REGULATION

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Inadequacy of Utility Accounting.—To anyone familiar with the practice of modern industrial management, the seeming inadequacy in many respects and incompleteness in final result of the accounting methods prevalent in the public utility field is impressive. In a considerable measure and in varying degree these methods are still comparable to the type of accounting now becoming rare in industry in which a company manufacturing and selling a variety of products has no means, other than estimate or isolated and special compilation, of knowing the cost of any class or specific item of product, or of knowing to what extent each is profitable or unprofitable. It must, however, be said in all fairness that certain notable exceptions exist.

Before the days of modern industrial accounting, in which cost-finding and expense analysis constitute integral parts of one complete system, the practice of manufacturers, so far as their internal accounts were concerned, was, stated in its simplest form, to charge all costs incurred (or expenditures as made), other than those which increased the value of the plant, to one account called a manufacturing or operating account. On the other hand, the amount of all bills rendered for products sold was credited to a Merchandise Sales account. At the end of each year the total of one of these accounts was subtracted from the other. If the total of credits to merchandise

sales exceeded the total charged to manufacturing, the difference would be, assuming the value of raw and finished materials on hand and work in process to have remained the same, the profit on the business for the year.

Usually there was considerable change in volume or value of goods in stock and in process of manufacture, and so it was the practice to take a physical inventory, assigning to the various items values based on estimates varying in their degree of inaccuracy according to the complexity of the business and its products, the character and availability of data upon which to base figures, the time available in which to complete the inventory, and the energy, judgment and integrity of those computing the values. The difference between the total of the merchandise sales and manufacturing accounts was then modified by the addition of any increase in inventory, or subtraction of any decrease. The final figure was accepted as representing the net profit or loss on the year's business.

The shortcomings of this method of accounting might be enumerated as follows:

1. Inaccuracy of final result due to errors in inventory.
2. Delay in closing books and interruption to manufacture while taking inventory.
3. Failure to show whether or not all products were profitable or unprofitable in the same degree.
4. Failure to provide currently comparative detailed information with respect to operating expenses and costs of products.

Modern Industrial Accounting.—In progressing from this crude form of industrial accounting most concerns passed through several stages before finally attaining the modern accounting system which gives each month, from the same sources and original figures and with a minimum of labor, the following information essential to good management:

1. A detailed analysis and statement of expenses, permitting comparison of each class or item of expense for one period with the same class or item for previous periods, and with an established budget figure. This involves the necessity for a scheme of classification and symbolization, or designation of accounts, enabling statements to be readily set up in various ways to bring out desired information, in addition to what may be considered the routine set-up.

2. The cost in as great or little detail as may be desired, of each class, lot or item of product worked on, including not only direct expenses, such as materials and labor directly expended on it, but also a proper proportion of all indirect (overhead) expenses. This is set up in a periodic statement, enabling comparison of the cost of a given unit of product for the current period with that in other periods.

3. A perpetual inventory or monthly balance of all raw or purchased materials, of work in process, and of finished product on hand. Working records are made, such as cost sheets, stock ledgers (balance of stores sheets), etc., serving as the supporting detail accounts for general ledger accounts.

4. An analysis and statement of sales and income, showing in such detail as may be desired the cost, sale price and profit or loss on each class or item of product sold, providing for comparison of the current period with others.

5. A monthly general ledger balance sheet showing assets and liabilities for the period in comparison with previous periods.

Progress in industrial accounting has largely been forced by economic pressure. So long as with old fashioned accounting a company continued to show a satisfactory profit on the business as a whole, its management did not care to take the trouble of ascertaining the relative profitability of its various products. Nor was it interested in a periodic detailed analysis and comparison of various classes of expenses. In industrial

undertakings interest in better methods of management has in the majority of cases been stimulated by diminishing profits, and this is especially true in the matter of accounting. Knowledge of facts such as is provided by modern accounting has in many instances led to the adoption of policies, the elimination of waste, and improvements in methods which have saved a company from bankruptcy. There are evidences that the public utilties are slowly but surely following the same path that has been traveled by industry.

Shortcomings of Uniform Account Classifications.—A step forward in accounting such as is considered essential to good management in industry has already been taken in the adoption of uniform classifications of accounts and systems of accounting for the several kinds of utilities. It is, however, only a step. These classifications and systems, which have been for a number of years and are still in an evolutionary stage, may be criticized on the grounds of inflexibility and into inconsistency which diminish their value. Apart from what might be termed structural weakness, their greatest faults might be stated as follows:

1. They do not provide or facilitate analysis of expenses in such manner or degree as to render the greatest usefulness to the operating management.
2. There is no consistent or sufficient relationship or parallel between the classification of operating expense accounts and income or revenue accounts.
3. There is no provision for distribution or allocation of indirect expenses (those incurred for the benefit of several or all classes of service) to the direct expenses of the several classes of service.
4. There is no provision for determining the complete cost of each class of service or important sub-division

thereof; and hence no means of knowing how much profit or loss is the result of each.

It will be apparent that the utilities have a great advantage over the industries in that their problem is not complicated to any extent by the necessity of keeping costs on work in progress, on specific lots of product which may require long and varying periods of time to complete, and on manufactured goods which may remain in stock for varying periods before being sold. Production and sales are in most cases simultaneous.

Accounting Essential to Management Neglected.—While there seems to have been little progress in the evolution of utility accounting during the past decade, strangely enough this apparent lack of progress has not been accompanied by an entire absence of interest in the subject on the part of those active in the utility field. In the utility technical press one finds articles on accounting. The National Electric Light Association has an accounting section and conducts courses in elementary and advanced accounting. There are associations of accountants that specialize in the utility field, such as the American Electric Railway Accountants Association.

Theories of rate-making and questions of valuation or investment involving charges to capital accounts, depreciation, replacement and other reserves seem, however, in the main, to have absorbed the time and attention of the various associations and committees dealing with the subject, largely to the exclusion of other aspects of accounting essential to economical and better management.

The need for, or even the possibility of, anything better than existing practice may not be generally recognized nor admitted, especially in respect to cost-finding, and yet that there exists an appreciation on the part of utility management, of

the importance of knowledge of costs as a guide to business judgment, is borne out by such statements as those of Alex Dow, President of the Detroit Edison Company, in a paper on "Some Phases of the Art of Rate Making," presented at the Convention of the Great Lakes Geographic Division of the National Electric Light Association, from which the following extract is quoted:

> Making the rate is not the function of the analysis. Its function is to guide your business judgment and prevent your fooling yourself. . . . . Let me say that I do not disparage cost analysis. On the contrary I have analyzed costs by what we know as the Hopkinson method for more than thirty years, and I have by myself or by deputy analyzed annually the costs of one property year by year since 1896. It is absolutely necessary that costs should be analyzed, but our analysis should be only a study—a very thorough study—to guide our judgment. It would be a public misfortune to have the analysis fix the rates.

Absence of Cost Finding.—Analysis of costs such as here referred to is not ordinarily and currently provided for as an integral part of the prescribed accounting systems of the utilities. Rather is it something which must be undertaken independently thereof, in much the same way that estimates of cost or analysis of expenses were compiled in industrial plants before the adoption of modern accounting methods. Indeed, the uniform classifications and systems of accounts prescribed for the utilities do not readily lend themselves to analysis of operating expenses or determination of costs of various classes or units of service along lines such as it would seem the President of the Detroit Edison Company must have had in mind—such as the need for arises in management and in cases coming before the regulating bodies. They do, however, permit an expert, by re-arrangement of figures, to develop with a certain

degree of accuracy such information as may be desired in connection with a specific problem.

There still remains, however, a wide area for difference of opinion on the part of experts on opposite sides of a question, or even on the same side, which might be narrowed down, if not practically eliminated, by modification and development, to a logical conclusion of the classifications and accounting methods now generally followed.

As Mr. Dow intimates, neither cost analysis without judgment, nor judgment without cost analysis, is adequate to the needs of management. The more business judgment may be supported and justified by facts such as are provided by a fully developed modern system of accounting, of which cost finding and expense analysis are integral parts, and the more value of service or ability to pay may be backed up by facts as to cost, the less there will be of expensive controversy, the more easily will cases coming before the regulating bodies be settled, the more efficient and economical management will be, and the greater will be public confidence.

Accounting for Merchandise Sales.—Difficulties and complications inherent in a utility enterprise, although they are no greater, if as great as those encountered in industrial management, might explain the lack of progress in accounting practice in regard to the main activities of the public utilities. This explanation would not, however, seem to hold good in the matter of Merchandise Sales, which in the case of many companies is not an inconsiderable part of their total business. In an article in the Bulletin of the National Electric Light Association for October, 1922, with respect to "Accounting for Merchandise Sales," Karl Jorgensen of the Bureau of Commercial Economics, Inc., Chicago, Illinois, says:

> The accounting for merchandise sales in a central station company is a problem which deserves serious consideration; up

> to the present time it has not been solved, and if the executives of the central station companies do not take an interest in the matter, in all probability it will take years before the importance of this activity will be generally recognized.
>
> It can safely be assumed that only a small minority of the central station companies engaged in the merchandise business are operating their merchandise departments on a profitable basis; the majority of the companies lose money and they lose far more than they realize or will admit. The available information pertaining to the operating costs, merchandise costs and margin of profits with many companies is practically negligible, and the so-called profit and loss statements, tending to show the sales, operating cost, and profits of the merchandise departments, prepared by some of the large companies in the country do not even contain the elements of cost that are found in similar statements of small grocery or country stores.

From this article the conclusion may be drawn that if all proper expenses were charged to this class of business, it would show a loss which must be borne by the service rendered, and that this questionable practice is justified by the fact that merchandise sold increases demand for the companies' service. Commercial houses handling the same merchandise must and do compete at a profit with all items of expense included. The inference is that in this branch of their business the utilities are inefficient. That Mr. Jorgensen's views are worthy of note is indicated by their publication in the official journal of the National Electric Light Association, and further by the fact that he was called upon to make a critical analysis of the systems included in a report of the Consumers Accounting Committee of the American Gas Association.

Losses on Merchandise Sales.—Almost simultaneously with this article there was published in the Electrical World for November 4, 1922, a paper by John F. Gilchrist, Vice-President of the Commonwealth Edison Company, being the

report of the Merchandising Policy Committee of the Association of Edison Illuminating Companies of which Mr. Gilchrist was Chairman. This paper, bearing the title, "Central-Station Costs and Losses on Merchandise Sales," presents an analysis of this part of the business of nine large central station companies. This analysis showed on a basis of figures obtained that on a total business of $7,214,149 a net loss was sustained of $645,523—six of the companies showing individual losses varying from 5 to 19.1 per cent of gross sales, and three, profits of from 0.39 to 2.6 per cent. Revised on what the committee considered a proper comparative basis the total loss was $974,949, all of the individual companies showing losses, the largest being 17.2 per cent and the smallest 8.2 per cent of sales. The following is quoted from the report:

> The Committee has found a decided lack of exact information as to whether or not this business is profitable from a merchandising standpoint. . . . . There was, however, little or no information as to the cost of doing business. . . . . Furthermore, on making inquiry, it soon became evident that few, if any, of the companies kept their figures in a way that enabled them to do more than estimate what their costs were, and such figures as were kept were kept on a different basis in nearly every company, so that it was quite difficult to make comparisons.

The report of Mr. Gilchrist's committee, the writer believes, possesses a significance and importance far beyond that of the volume and class of business concerned. The committee's conclusions would indicate that it believes this class of business can compete with independent commercial concerns, and that even with all of the costs which such concerns have charged against it, a profit may be shown. An adequate and suitable system of accounting seems to be essential to this end. Is it not probable that if a similar analysis were to be made with respect to each of the major divisions of the business of the same nine

companies, equally startling conditions might be brought to light?

Fear of Improper Use of Cost Figures.—In the utility ranks there appears to exist in the minds of many a belief that knowledge of the costs and relative profitability of various classes or units of service would fulfil no useful purpose inasmuch as rates may not and should not consist of actual cost plus a fixed percentage of profit common to all. The writer is convinced that progress has been retarded by fear that such cost figures might be improperly and even foolishly used, as would be the case if such an asinine procedure were followed as to attempt immediate and absolute revision of rate schedules strictly and solely upon the basis of costs. This fear has been usually accompanied by a similar one that any effort at cost accounting must necessarily be accompanied by such a maze of red-tape and carried to such a ridiculous extreme as to more than outweigh its advantages. These fears exist in the minds of some of the more progressive utility executives and are reflected among the ranks of utility commissioners, even though the parties concerned in the main believe in the desirability of good accounting.

An accounting system can, of course, be so designed and administered and its results so utilized as to bring it into disrepute and to do more harm than good. The writer has heard of this being done in at least one instance in the utility field. It might well happen again if the development of utility accounting continues along the same lines as in the past. The use of common sense and good business judgment must, of course, be exercised by both utility managers and commissioners.[1]

[1] See paper "The Uses and Value of Classified 'Cost of Service' Data as Supplementary Evidence in Certain Types of Rate Cases," by Charles B. Cooke, Jr. Presented at the Convention of The Pennsylvania Electric Association, September, 1921.

Correct Use of Cost Data.—In all this there is little difference between the problem of the utilities and of private competitive industry. A manufacturer may have, as many do, certain lines which his costs show to be produced and sold at a loss, but which he is obliged to continue selling as necessary adjuncts to his profitable lines. Likewise, he may with all propriety and satisfaction to his customers earn a larger rate of profit on one class of product than another. Competition and tradition may prevent his raising prices. Apparently there is nothing he can do to improve the situation; but nevertheless he does. Sooner or later, if he is confronted month by month by the facts, he will find a way, if not to turn the loss into a profit, at least to reduce or restrict it.

In the case of merchandise sales it is doubtful if relief may be had by increasing prices, and yet as a result of Mr. Gilchrist's report it is a safe conclusion that all over the country successful effort will be put forth, through better management, to make merchandise sales carry its fair share of expense and still show a profit. Would this not likewise be the result of a similar analysis of other classes of service that might not show up as being self-supporting? Is not a system of accounting needed which will, as a matter of course, present the management each month with such analyses?

Instances of Proper Accounting Systems.—The most notable instance of a system, such as is under discussion, that has come to the writer's attention is that developed by an organization managing a number of public utilities, including electric, gas and street railway service. This system has been in continuous use and has been extended to one company after another during the past decade. It was brought into existence with very little, if indeed any, thought of any bearing it might have upon rate regulation, but almost solely with the idea of its supplying information which its authors considered indis-

pensable to good and economical management of the properties intrusted to them.

The system provides all of those things indicated at the beginning of this chapter as being essential, and overcomes all of the objections or shortcomings pointed out by the writer or parties quoted. Thanks also to a logical, comprehensive and elastic scheme of classification and designation of expenses, services, etc., it permits compliance with any requirements of the uniform classifications and systems of accounts prescribed by the public service commissions. Space will not permit any detailed description of this system, which, to the best of the writer's knowledge and belief, is far in advance of general accounting practice in the utility field.

Another example, along essentially similar lines, although not so well or fully worked out as that just referred to, was described in an article which has appeared in the "Electrical World," by W. J. Greene, P. C. Schoonmaker and C. B. Gorton, describing a method devised and used by the Iowa Railway and Light Company, which, as an integral part of their accounting system, analyzes the cost of central station service to the consumer along the lines under discussion. Of this article the editor says:

> In spite of all the past efforts toward computing rates on a rigidly scientific basis, it is hardly mere speculation to assert that a large majority of the published electric rate schedules would, upon investigation, be proved to rest upon tradition or expediency. In relatively few instances could it be demonstrated that the classification of consumers is at the same time fairly complete and completely fair. The cases are not yet the rule where each consumer contributes equitably with the others to the expenses and fair profits of the producers. . . . .
>
> Books are kept primarily for the purpose of exhibiting the extent to which the enterprise is solvent and profitable, but they can as well reflect the costs of financing and operating in

such form as to permit ready and appropriate allocation among classifications.

From the article itself the following is quoted:

> The cost of service to the various classes of consumers of an electric light and power system has been a debated question on which different authorities making an analysis of the same property are quite likely to disagree. Frequently the disagreements will exhibit serious differences. This is due largely to the fact that no method generally accepted for utility cost allocation has been developed. A large amount of effort in this direction has been expended in the industrial field, and in the modern quantity production factory very accurate methods of determining costs have been developed and the executives in charge know at all times where any department, or the business as a whole, stands. There seems to be no logical reason why the same thing cannot be done for any utility if a careful study of the conditions is made, the proper plan of handling the records developed, and cost allocation made a matter of routine accounting.

In concluding their paper the authors enumerate and discuss the advantages of cost knowledge under the following headings:

A Guide for Determination of Rates.
A Basis for Cost-plus Sale of Service to Large Consumers.
A Logical Method for Presenting Costs in Rate Controversies.
A Method for Determining Costs of Service in Each Town or City on a Common Transmission System.
A Measure for Taking on New Business.
A Measure for the Extension of Transmission or Distribution Lines.
A Method of Determining the "Rate of Return" from a Class of Consumers or a City.
A Statistical Knowledge of the Business.
A Method of Determining the Efficiency of Plant Operation.

In their final paragraph the authors say:

> The Iowa Railway and Light Company believes that an accurate knowledge of costs is essential to its further economic development, and has arrived at the conclusion that, in addition to the generally recognized basic fundamental principles, there are other elements that have not been generally recognized in utility cost accounting and believes that these elements must be recognized as characteristics of public utility costs and must be used in connection with the others as the foundation for the determination of unit costs.

From the fact that the writer has drawn on the electric lighting utilities for certain of his illustrations it must not be supposed that the arguments for better accounting are not applicable in equal or greater degree to all other branches. Likewise, the situation seems to be the same whether utilities are publicly or privately owned.

Present Account Classifications an Obstacle to Improvement.—There is a striking similarity between all of the classifications and systems of accounts prescribed for the several classes of utilities. They all possess the same fundamental shortcomings and defects. At the time they were adopted they no doubt represented a great advance, and taking all things into consideration, probably went as far as was practicable. They have undoubtedly stimulated interest and paved the way for something better, in addition to having in a considerable measure accomplished the purpose intended by their adoption.

The time has arrived when something better is needed.[2] However good they may have been, the present classifications of accounts are, in the writer's opinion, now one of the greatest obstacles to the general extension of better accounting methods.

The greatest fault outside of inflexibility, lack of logic and

[2] See remarks on cost-keeping in a lecture, privately printed, entitled "Snapping Cords," pages 28, 29, 30, by M. L. Cooke; also a paper by the same author, entitled "True Cost Finding—What it Can Do for the Railroads," published in the Annals of the American Academy of Political and Social Science, Philadelphia, November, 1919.

poor scheme of designation in the existing classifications, is that they do not except in the case of gas and electric utilities, in a way so defective and incomplete as to be of little value, bring together costs under the same groupings and divisions as services and their resultant revenue. For example, the classification of accounts prescribed for electric railways treats a company's transportation business as though it operated a single line, subdividing operating costs by character of expense. On the other hand, its transportation operating revenue accounts are sub-divided again as if it operated a single line but according to class of service, such as passenger, baggage, express, freight and sleeping car, etc.

While such analysis of income may be of major importance in the case of certain lines, particularly of interurban service competing with steam roads, all but passenger revenue would be of very little importance in the case of an electric railway system serving a city.

But suppose a company operates a subway line, an elevated line, several urban surface lines of various characters and importance and two or more interurban or suburban lines. In such a case the management, it would seem, must be first interested in knowing the cost, both direct and indirect, of each of such lines, as well as revenue and profit or loss on each line or unit in each class, and secondly, according to kind of service, such as passenger, express, freight, etc., where such subdivisions might exist. The management must also care to know the cost of maintenance and operation of various kinds of equipment under the conditions imposed by its various lines. All of this the management can, of course, get in various ways independently of the prescribed system of accounts, but the classification certainly does not, as it might, encourage or facilitate doing so, and it is doubtful if any such figures as may be compiled apart therefrom would balance with the books as they are required to be kept.

It is to be expected that as the utilities get more into the refinements of modern cost-finding practice some novel and fundamental questions will be developed. For instance, L. H. Kinnard, President of the Bell Telephone Company of Pennsylvania, says: "In the telephone business the ascertainment of costs is more difficult and elusive than in other utility or industrial fields because of the community of interests between the users of the various classes of telephone service." Perhaps the purveyor of electric energy could state some such proposition as affecting the service of large and small users.

Investment and Management Accounting.—As has been pointed out, for years committees of the several associations representing the various classes of utilities and a committee of the National Association of Railway and Utilities Commissioners have been working on classifications and systems of accounts, but apparently their attention and efforts have mainly been demanded by questions of charges to capital accounts, theories of depreciation, replacements, etc., and the bringing about of uniformity in practice, largely to the exclusion of cost-finding and expense analysis as functions of accounting. In other words, investment accounting seems to have eclipsed management accounting. Possibly there should be two sets of committees—one continuing to deal with the problems of invested capital, etc., and another with those of management and accounting technique. The fundamental nature of the two phases of accounting may perhaps be such as to make it improbable that they may be advantageously dealt with by the same people.

If progress is not to continue, as in the past, to be limited in scope, to proceed at a slow rate, and in the main to consist of "cobbling up" what already exists, it is highly probable that future efforts must be along different lines, with a new point of view and a new objective.

Reform of Routine Accounting Practice.—Without disparaging the work of the various committees or individuals who have been occupied with problems of utility accounting, it seems obvious that the working out of this problem is not a job for committees or commissions whose members have other interests and more pressing claims upon their time. Neither is it reasonable to expect that a satisfactory solution may be worked out by those responsible for the routine accounting of the various utility companies who have their hands full with their regular work. It is a full-time job for a properly organized group of qualified men bringing to bear upon it practical and thorough knowledge of accounting, of the technical and legal problems of the utilities concerned, of sound business practice and broad public policy.

The expense attached to the undertaking, if properly carried out, would not be small and might well be more than a state alone or any individual company should or would be willing to bear. If it might be financed jointly by the state and the utilities, such an arrangement would most likely be the best. At any rate the person or persons to do it should be selected jointly by, and the work carried on under, the joint direction and auspices of the state and the utility concerned. Cooperation of the various associations, especially those interested in utility accounting, should be secured. An exhaustive study of existing utility accounting practice and requirements in all parts of the country, as well as of modern industrial accounting, should precede any attempt to develop a system.

Following the example of the accounting committee of the National Association of Railway and Utility Commissioners, the system should be first worked out for one class of utility, but having in mind its being fundamentally applicable, with proper modification or extension, to all others. It should be largely worked out in detail and put into effect at the same time in one or two representative companies, to be ex-

tended to others only as fully developed. Any attempt to work out a complete system independently of its practical application and then to bring about at one stroke its simultaneous general use through legislative action or by any other means, could only result in confusion and general dissatisfaction.

The existing systems would, of course, have to continue until the new system might take their place. Thus for a time each company would have in varying degrees two systems of accounting. As the public service commission's requirements might not be changed until all of a given class of utilities were operating under the new system of accounting, it must be developed so as to readily permit the setting up also of accounts in accordance with present practice. This need not offer any difficulty, as a suitable classification with a logical scheme of designation or symbolization would make possible, through either mechanical or manual sorting and adding, compilation in any way that might be desired either by the management or the public service commission.

Account Symbolization.—The scheme of classification and designation of accounts is of far greater importance than is generally realized. Preferably such a scheme of symbolization should be along the lines of what is known as the "Mnemonic" system, using both letters and numerals rather than the more limited and less flexible though better known, "Dewey System" which uses only numerals. Both of these systems are based upon the same principle of logical grouping and sub-division common to all processes of analysis and synthesis. In fact the "Mnemonic" system was developed with a view to overcoming the inherent limitations of the "Dewey" system. The present systems of account designation are of little or no value, being in the main merely abritrary and continuous series of numbers assigned to the various accounts, although recent development shows a drift toward the "Dewey" system. A critical study of

the classification recommended by the National Association of Railway and Utilities Commissioners shows a faulty development and that seems to be a failure to grasp and make use of the full possibilities of even the "Dewey" method.

Good Accounting Needed to Develop Facts.—The writer wishes to urge and reiterate the view that proper accounting is of far greater importance than its direct effect on rate making, however valuable it may be in that connection. It will not in itself solve the vexatious question of valuation. Sooner or later, rightly or wrongly, decisions on this element of cost with respect to existing physical assets will be reached and values established in the case of one company after another. From that point on, in accordance with established policy and practice, proper accounting will substitute in increasing measure figures based on fact rather than opinion. Once a basis of fact exists with respect to invested capital and its cost, then it would seem that cost of service must become of increasing importance as a factor in the determination of rates.[3]

If a utility furnished only one kind of service to one class of customer in equal quantity to all, the present system of accounting might be fairly satisfactory. More and more, however, the cases coming before the utility commissions have to do with a specific class of service, a specific group of consumers of service, in a specific locality, and questions of cost are generally involved.

In the absence of facts such as a good system of accounting ought to provide, decisions must be reached as the result of weighing opposing opinions, which in the present stage of utility accounting can as a rule only be backed up by estimates or figures especially compiled apart from the regular accounting system of the company. Such figures do not necessarily bear

[3] For an interesting treatment of this question the reader is referred to a paper by Donald R. Richberg of the Illinois Bar, entitled, "A Permanent Basis for Rate Regulation," published in the Yale Law Journal, January, 1922.

any relation to the costs of other classes of service, as they would in any system which furnished them as a matter of the routine essential to the regular closing and balancing of the company's books. Hence they may involve a variety of errors, of omission and judgment, as well as being influenced by the situation on account of which they are compiled, and they, therefore, cannot carry the weight with the regulating bodies that currently compiled figures, forming a part of a company's regular accounting system, would have.

If two parties hold opposing and ill-founded opinions, they may argue till doomsday without getting anywhere, and even the fairest minded judge may decide wrongly. If, on the other hand, easily substantiated and understandable facts may be presented by either party, there is little room for disagreement. No doubt progress has been impeded and initiative repressed by the theory of basing rates and earnings mainly, if not exclusively, upon a limited percentage of invested capital or valuation of property, rather than upon cost and value of the service with a wider range of permissible earnings dependent in a greater degree upon efficient and economical operation. Especially is this true if rate-making bodies are to take into account the need for an incentive to management, such as exists in the industrial field, *in the form of higher permissible profits when they are fairly earned as a result of lowered costs due to increased efficiency in operation and better service rendered the community.*[4] To this end also is adequate accounting essential.

No Incentive to Secrecy Among Utilities.—In competitive manufacturing industry there has been going on for a number of years a gradual loosening up of the policy of rigid secrecy. Technical matters are rather freely discussed in the

[4] Of interest in this connection are the plans of the Philadelphia Electric Company, the Philadelphia Rapid Transit Company, for sharing profits with employees; also the plan followed by the Boston Gas Company for sharing the fruits of economical management with both consumers and employees, described by Brandeis in his book "Business—A Profession."

various technical societies, as are also other matters pertaining to specific businesses in their respective trade associations. Over fifty branches of manufacturing industry have adopted or advocated through their trade associations, uniform systems of cost accounting—mainly no doubt with a view to eliminating the evil of ignorantly quoting in competitive bidding, prices below actual cost. Still, competing manufacturers have not yet reached the point, nor is it to be expected that they will, where they freely interchange information with respect to costs, although possibly all might in the long run benefit by so doing.

In two equally successful companies the total cost of production might be identical, and yet if analyzed it would probably be found that certain items of expense in one company were much lower than the same items in the other. By improving the things thus indicated each company would be better off.

In the absence of any incentive to secrecy such as exists in competitive lines, the public utility companies possess a great potential advantage. One of the objects of the existing uniform classifications of accounts is to facilitate comparison of the statements of one company with another. This should be kept uppermost in mind in the development of an improved system, not only with respect to the needs of the commissions in rate decision and regulation, but particularly with a view to benefiting the managements of the various companies through comparison of the expense analyses and costs of various classes of service of their own companies with those of others.

Comparisons Between Different Utilities Permitted by Good Account Classifications.—That the present uniform classifications and systems of accounts fall short in this important respect is evident from such statements as that reported to have been made at a recent hearing before the Massachusetts Department of Public Utilities by F. Manley Ives, Attor-

ney for the Edison Electric Illuminating Company of Boston. In this instance a rate of 4 cents per kilowatt hour in Cleveland was contrasted with one of 9½ cents in Boston. Mr. Ives called attention to the fact that "comparison with other companies in other cities was useless unless conditions were similar."

The extent to which comparison can be made depends in a very great measure upon how a classification is designed. All conditions or elements of cost in any two companies may not be so similar as to permit of direct comparison. A good classification should make possible and easy comparison of all similar conditions and resultant costs and enable reduction to common terms of most of those not directly comparable.

Greatest Value of Proper Accounting Sysem.—In the article quoted from, Mr. Dow of the Detroit Edison Company emphasized the importance of the exercise of judgment on the part of utility management. Judgment is equally essential on the part of the regulating bodies. Facts such as are brought out by good accounting are essential to the sound judgment of both. If a proper system of accounting were in general use, it would no doubt be more than justified by the saving in time and money it would effect for the companies, the people they serve or the public service commissions, by removing the cause of a large part of the controversies and facilitating decisions in those remaining. The greatest value of a proper accounting system would, however, be to the companies themselves as a tool of management, quite irrespective of any theory or accepted practice of rate-making, or the needs of the utility commissions.

In this connection the writer wishes in conclusion to call attention to what strikes him as a grave danger in the too prevalent lack of desire or effort on the part of utility managers to know the cost of the various kinds of services which they render and of activities incidental thereto. This must inevi-

tably communicate itself to all concerned, from the top down to the humblest employee, result in a similar lack of concern and make for lowered morale, inefficiency and waste all along the line.

If the utility commissions would make clear that their interest in cost accounting is not primarily with a view to rate revision and especially that there is no intention of utilizing cost data in an unreasonable or unbusinesslike way, but rather that they are interested in it as a means to efficient and economical operation and better relations between the utilities and the public, such action would no doubt go far toward removing the obstacles and overcoming the apathy now blocking the way of progress in this field.

CHAPTER X

THE PUBLIC SERVICE COMMISSIONERSHIP AS A FACTOR IN GOVERNMENT

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Men Best Fitted to Act as Commissioners.—While regulation as a policy is in its second generation, it is still in the experimental stage. It can scarcely be said that in any of its elements have we reached the point of completely satisfactory realization of its objectives. Naturally this is especially true as to the commissioners themselves. What experience and what characteristics should they have? What about their relations to the public and the properties which they regulate? Should they be elective or appointive? No final answer can yet be made to such questions. The whole environment in which public service commissions function is so fluctuating that a factual study of such questions would be difficult—possibly misleading. But some understanding of the questions involved in choosing commissioners and their conduct when chosen is inherent in this inquiry.

In order to cover the matter in an authoritative way, the writer has counselled with eight or ten men who have not only served on public service commissions, but in so doing have made enviable records and distinctive contributions to the development of the theory of regulation. Wherever quotations are used without other credits they are taken from the resulting correspondence. For instance, in describing the type of men best fitted to act as commissioners, there is no better way of

arriving at a satisfactory conclusion than to quote the views of the distinguished correspondents.

No special effort should be made to have the Commission composed of specialists in different fields, such as an engineer, a lawyer and an accountant. The Commission ought to get its technical advice from its staff. Then each member will be free to discuss on an equal footing the reports that are made to it. If the Commission were to be composed of specialists in different lines, the inevitable results would be that the accountant would think his suggestions should be followed unquestionably by everyone else; the lawyer would feel likewise; the engineer would feel the same. Each of the Commissioners should feel free to discuss and pass upon all of the reports that are made to it. Of course, the fact that a man is either a lawyer or an engineer should not be a bar to appointment upon the commission. But such an appointee ought not to consider that he has any special right to determine the attitude of the Commission on subjects coming within his field. His opinion should be given greater weight because it sounds right, rather than because the specialist said it.

It is desirable to secure men who know something of utility questions. But men who have had some experience in dealing with public matters, whose sympathies are on the side of the public and who are loyal to the public interest,[1] are the men who should be appointed. regardless of the profession from which they are taken. Lawyers have one advantage, namely, that they are familiar with the conduct of proceedings, know how testimony should be taken, how records should be made and what is the orderly conduct, but laymen can quickly learn that records should be kept and that slipshod methods cannot be tolerated.

A man may enjoy a deservedly high reputation at the bar, and yet not make an ideal commissioner. If he considers that his main duty is to hear cases, and examine judicial precedents, and apply rules which the courts have formulated, he will fall short.

Perhaps a judge may properly act that way, although that is not true without qualification. A commissioner, however, cannot. The law is an ancient and pretty well-developed science, whereas regulation is

[1] J. W. Ledoux, consulting engineer, suggests "loyal to the interests of justice" as a better standard; and then he adds: "Fair dealing to the public as a matter of policy has not the same effect as where it is due to a high standard of justice. Even a child can sense insincerity."

comparatively new. It is in the development stage, both as to methods, procedure and legal rules. A commissioner must play a part in this development. It will be a great convenience to him to have a knowledge of legal principles, and of court decisions, but that is not enough. He ought also to have a constructive mind, and a will to make the commission on which he serves accomplish the proper purposes for which it was created, if a way can be discovered to that end.

He should accept his place in the governmental machine, and honestly conform his acts to the law as finally settled in the courts, but he should be prepared to do his part in shaping the law, and ready to challenge the finality of decisions which may appear applicable, but which were rendered perhaps before present day regulatory problems arose, or without a full presentation and consideration of the effect which it now appears they will have if adopted and made the basis of commission practice. In short, he should act upon the theory, both as to decisions and statutes, that the law has not all been made, and that his duty is to help to discover what it ought to be, and to do his part towards making it so.

A commissioner's job is the job of a specialist. But it is rarely that a specialist prepared for the job can be found. Generally, he must make himself a specialist after he takes office. Accordingly, commissioners ought to be men who have intelligence sufficient to comprehend what the problems of regulation are; disposition to do whatever amount of work may be necessary to discover any possible solution of them, no matter how great that may be; and confidence enough in human intelligence to believe a solution can be found; and initiative and originality enough to make intelligent experimentation, where experimentation is permissible. The all-important thing is to get men whose minds have not set.

The best commissioner is the man with a broad gauge viewpoint with liberal public leanings, neither conservative on the one hand nor radical on the other. If a Commission has a lawyer of recognized ability as a member of its staff, it would not be necessary to have any of the Commissioners lawyers. If not, there should be at least one lawyer. What may be called the liberal newspaper type is best suited to the job. The right sort of a newspaper man has for years been looking impersonally upon public questions and usually has a sane viewpoint, probably with leanings toward the public interest. I do not

mean a Wall Street Journal man on the one hand, nor a New York American man on the other hand. I mean a New York World man.[2]

A man past middle age is unlikely to prove a good commissioner unless he has had previous experience and unless he is in unusually good health. I am inclined to favor lawyers. Legal questions are involved in almost all a commission is called upon to do, and in addition to that, lawyers are trained in the rapid assimilation of new problems and in the proper weighing of evidence. They may be inclined to be too technical. I should not want to see all lawyers on a commission, but a good percentage of them is desirable. The really important thing about a commissioner is that he should be intelligent, fair-minded and impressed with the belief that he is performing a public service and is a trustee of the public interest. The worst type of commissioner is probably the man who is appointed as a reward because of political services that he may have performed and who does not take the job seriously.[3]

Appointive vs. Elective Commissioners.—The movement for fewer elective officials at least suggests the appointment of commissioners, but a canvass among men who ought to know leaves the question of appointive versus elective commissioners by no means settled.

As to whether Commissioners should be elected or appointed, I personally much prefer the latter, although their tendency is to grow aloof and to become more responsive to demands from companies than considerate of public interests. On the other hand, elected Commissioners are apt to give too much attention to politics and party considerations. I believe the best Commissions have been appointed, but I presume it is also true that the worst Commissions have been appointd.

The results of having commissioners elected by the people are not always good, because the successful man may be a mere demagogue,

[2] Carl D. Jackson, formerly chairman of the Wisconsin Commission, says: "It is helpful to have on the commission a member who is especially familiar with the economic considerations involved in all regulation; someone who has made a special study of economic principles, and it may not be going too far to suggest that all commissioners who are taking a broad view of the whole question of regulation must be more or less familiar with its economic aspects."

[3] L. H. Kinnard, President of the Bell Telephone Company of Pennsylvania, says: "Commissioners should have had some experience with large affairs so that they may have a proper conception of the responsibilities devolving upon them in their effort to regulate large affairs."

but I think it is true that some of the most active and enterprising state commissions are elected by the people, while some of the most inactive and unenterprising are appointed by governors. On the whole, I am inclined to think that the appointive system may result in the best commission under a really first-class governor, but if the governor is not what he ought to be, the elective system is likely to produce better results. If the commissioners are elected, I think their terms should be pretty long, so that they need not devote their energies to campaigning too often. It must be, at least when there is a contest, a trying experience and destructive of time for regular duties. The elective system has the further advantage that it gives the commission an excellent opportunity to get the public point of view and also to explain and defend its policy to the public.

A governor with opportunity and inclination to investigate and consider the qualifications of men is much more likely to get the right sort than voters acting in primaries and elections. Ten years ago I would unhesitatingly have expressed opposition to the idea of an elective commission in any state. My observation of the actual working out of the elective and appointive plans makes me less cocksure now.

The truth is, governors do not always make as good appointments as theoretically they ought. There are explanations and excuses for them which we may leave to one side. Furthermore, the theory that appointive commissioners are more secure in their tenure, and hence more independent, has proved a fallacy.

One of the greatest handicaps under which regulation labors is the constant loss or scrapping of the most efficient units. Commissioners often only approach the grade of specialists when they retire to private pursuits, either voluntarily or through failure of reappointment. The fact that the elective system, strangely enough, does tend to make tenure more secure, is an important argument in favor of it.

As evidence that this is true, I would point to Chairman Burr, of the Florida Commission, who has held office continuously for approximately twenty-five years; to Dwight Lewis, now President of Association of Railroad Commissioners, who has been connected with the Iowa Commission almost as long; to Chairman Taylor, of Nebraska; to the fact that Judge Mills, of Minnesota, died in office after twenty or twenty-five years of continuous service; and to the fact that Chairman Mayfield, of the Texas Commission, bids fair to do the same. Sometimes, it is true, good men are defeated upon political considera-

tions. The instances of this sort, however, are not so many as of the good men who fail of reappointment.

While I find it difficult to get over my prejudice against the election of commissioners, I have reached the conclusion that the arguments for the elective system rather overbalance those against it for states which are not so populous that the better informed voters of the average sort cannot get to know something about their commissions. In such states they can, I think, be depended upon quite as safely as the governor and his advisors to continue proper men in office. Perhaps the hazard is greater in the first instance, but of that I am by no means sure.

In states so large as Pennsylvania, New York and Illinois, I should still be unwilling to risk popular election. But I do not feel at all certain I am right on this point.

Tenure of a Commissioner.—The opinion seems to be fairly unanimous that the frequency with which commissioners suceed each other affords one of the weakest points in the regulatory system. The normal tenure of a commissioner should be more like that of a judge on the bench. This presupposes, of course, at least equivalent care in the selection of commissioners.

It is almost heartbreaking, when the history of state commissions is examined, to note the constant interference as changes in administration occur. New governors are frequently not satisfied with their power under the law to create and fill vacancies as terms expire, but seek some excuse to remove all members of a commission from office and substitute a new lot. This is usually done by changing the law and effecting a so-called "reorganization," the reorganized commission often being given a new name. But it must be evident that so long as there is the likelihood of such instability in office it will be very difficult to get men of proper calibre to accept the job. The opportunity to improve the personnel of commissions as terms expire should freely be exercised, but resort to frequent reorganizations means a domination of political influences, and in my opinion, is destructive of valuable and enduring work.

The only restraint which ought to be placed on a commissioner aside from those imposed by positive provisions of law, and by his

own conscience, is the restraint of public opinion. He ought not to be required to perform his duties subject at any time to recall, either by the voters or by the governor, merely because the voters or the governor differ with him in opinion as to the way he ought to perform them. There are doubtless times when a change in the personnel of a commission would operate to the temporary advantage of the public. But the ill results of subjecting commissioners to recall, exercisable by the governor, will, in the long run, I think, outweigh in importance any temporary advantage obtained in such few instances as might occur. Responsibility must be placed somewhere, and it had much better be placed ultimately with the commission than primarily with the commission and ultimately in the governor.

When commissioners have been selected they should be removable only for malfeasance, after hearing, and there should be a rather broad right of judicial review as to the sufficiency of the evidence. It is not an edifying spectacle to see a governor holding a hearing to receive proof that he should remove commissioners whom he has already promised on the stump he will remove if elected. To give the right of removal for incompetence, or neglect of duty, invites removal because the governor entertains a different view from the commission as to what the commission ought to have done.

Commissioners should be removable for simple malfeasance and gross non-feasance.

Character of Commissioner's Work.—No group of questions are more vital to the future of regulation than those which decide the character of a commissioner's work, i.e., as to whether it is judicial, quasi-judicial or administrative or some combination of all three. To the failure to recognize this as debatable ground can be ascribed a large part of the dissatisfaction with regulation to date.

As between two contending utilities, the Public Service Commission serves in a judicial way; between a public utility company and the public the Public Service Commission serves in an administrative way.

We are concerned about the latter function of a Public Service Commission—the part it plays as between a public utility on the one hand and the public on the other. This is its larger and more impor-

tant relationship, and in that relationship it is no more a judicial body than was the City Council which it succeeded.

The Public Service Commission succeeded to the rights and powers of the City Council in the matter of dealing with utility corporations. If we once get that firmly into our heads, then the administrative viewpoint becomes crystal clear.

Prior to the formation of Public Service Commissions the legislature vested in City Councils the right to negotiate on behalf of the public with public utility companies. In exercising this right the City Council acted as an arm or agent of the legislature and exercised a legislative function. As time went on, however, it developed that some councils were venal and all councils were inexpert and ignorant; that the councils therefore failed properly to protect the public. Even if a council were honest, it was no fair match in the bargaining across the table with the expert and well-informed representatives of the utility. To remedy this situation the legislature then decided to transfer this power to negotiate from one agent, to-wit: the Common Council of the City, to another agent, to-wit: the State Public Service Commission. The second agency was supposed to be composed of high grade men, who were further reinforced by expert aid—expert engineers and accountants.

It was thought that the public would thus be better represented in negotiations across the table with public utility companies. No new power, however, was taken from the bosom of the legislature. The legislature merely changed its agent for the exercise of a power. Whereas that power heretofore had been delegated to the Common Councils, it was withdrawn from the Common Council and placed in the new centralized and expert board. The Public Service Commission, therefore, was merely a new legislative agent, created to exercise an old power—the power to represent the public in negotiating with quasi-public corporations. The Public Service Commission stood in the place of the old Common Council and in such capacity is supposed to function on behalf of the public.

A regulating commission should not regard itself merely as a court to pass upon the contentions of opposing parties, but should also regard itself as in part an administrative body designed to protect the public interest. Most such commissions are given power to institute proceedings on their own motion, and if they have such power, it follows that when complaints are presented to them they are not confined to

such evidence as the parties may offer, but may do investigating upon their own account if it appears that the issue raised is of public consequence. Commissioners, in presiding at public hearings, should freely exercise the right to ask questions in order that they may aid in bringing to light the real facts upon which just conclusions should be based. If a commission does investigate upon its own account in a formal proceeding, the results of such investigation should be formally presented of record, so that they may be open to all parties and be criticised or rebutted if they so desire. It is a great help in creating public confidence in a commission if those who have complaints can go before it with the feeling that their complaints will be adequately investigated even if they are unable to employ expensive counsel. A commission can do no more important thing than to create and justify the belief that it will work just as hard to protect the interests of the weak as the interests of the powerful.

A commission is an administrative body, exercising legislative functions. To assume that it is a judicial body is to start in the wrong direction. Of course, members of the Commission should be fair and in that sense they should have a judicial temperament, so that their actions may not be warped, but Public Service Commissions are not judicial bodies in the sense that they sit to pass upon the questions of fact and law raised by contesting litigants. In many cases, there is only one party that appears, and it should be the duty of the Commission to see that a thorough investigation is made and the facts brought out regardless of the strength or weakness of any one party.

Further, they should not wait for cases to be started, and should not assume that if a rate case is not brought to their attention there is no need for such a case. In other words, they should be on the lookout to do justice and to find out where justice is not being done, and on their own initiative to start proceedings.

I believe that it is possible to secure all of these results without making a Commission a prosecuting attorney and jury.[4] They can see that the subordinates prepare the data and that it is done in accordance with rulings made in other cases. Then, when the reports are submitted, the Commission may listen to the examination direct and cross without jeopardizing fair results.

A commissioner is not a judge, and if he tries in all respects to

[4] L. H. Kinnard, President of the Bell Telephone Company of Pennsylvania, says: "Commissioners are representatives of the public. But this only means that they hold public office, just as do governors, judges and various other public officials. It would be shocking to a true conception of justice if they were led to conceive themselves to be prosecuting attorneys and to perform accordingly."

act like one, he may get the reputation of being a man of great probity, but he will fall short of making the best sort of commissioner. Without honesty and good sense no man can be that. If he has those qualities, he can be trusted to see either the public or representatives of utilities without any limitation or restraint. If he has good sense, he will not listen to an ex parte presentation of the case by the company's counsel or president, nor, on the other hand, will he drive from his office some citizen who has come to tell the commission something he thinks his public officials, charged with regulation, ought to be told.

A commission, by and large, does not have a judicial status or should not, except in a limited way. It was created, and the taxpayers' money is continually being spent for its support on the theory that its function was to protect the unorganized and ignorant public against the organized and skilled utilities. Generally speaking, it should function as an administrative agent on behalf of the public. The Commissioners themselves may properly function in some sort of judicial way. The accounting, engineering and other technical staffs of the Commission, however, should frankly present data and evidence from the standpoint of the public and should represent the public to see that its side of the controversy is given proper attention.

Informal Hearings.—There is a good deal to be said for informal hearings in so far as they expedite business. Criticism of such proceedings has to do not so much with their informality as with the fact that too frequently this term applies to conferences held with the representatives of the private interests when the public protestants are not present. Comment may be summarized as follows:

1. That all parties do not have an opportunity to be heard, and this means that generally it is the public that is not in attendance. Corporation officers are always on the job, and their entire work is devoted to the interests of the company which employs them. They are continually at work and things are often said in informal hearings that would not be said in a public hearing, and yet prejudices and impressions are created by these *tête-à-tête talks.*

2. That as no record is made, the public cannot find out what was actually done and usually is not advised until considerable time has

elapsed, during which equities have been created and things done which it is impossible to undo.

3. That rules and methods are apt to be followed which are different for different cases without any differences being justified by the facts. There is no one to criticise, except that if the company is not satisfied it may start a formal proceeding or delay the matter until a more favorable time when another Commission may be in the chair and there will be no record of the unfavorable action which had been taken before.

4. That the impression given to the public is that questions are decided in secret and without the public being advised, which creates distrust and suspicion even where none is justified.

It seems desirable to draft the law, with respect to what may be termed administrative functions, so that public hearings and formal records may be unnecessary unless someone expresses a desire to be formally heard. In the administration of the I. C. C. law with respect to the issue of securities, the commissioners are not obliged to hold hearings unless it seems desirable so to do. It is possible by employing informal conferences to expedite the work a good deal. However, when legal questions arise in connection with almost any phase of a commission's work, quasi-judicial functions enter in. It does not seem possible to draw a sharp line of differentiation between the two. I have had increasing fear that we are over-extending the commission idea. As regulatory, quasi-judicial tribunals, they have done much good. But when, as is now happening in the I. C. C., we overload them with administrative and executive functions, they are not efficient. If one were recklessly to undertake to characterize by a single word the present deplorable condition of our railroad transportation system, that one word is "irresponsibility." Administrative and executive functions have been so subdivided between these accidental, self-perpetuating, financial cliques called railroad corporations—some very bad, some very good, most of them neither bad nor good cliques—the Railroad Labor Board, and the I. C. C., that the result is inefficiency and almost chaos. The I. C. C. ought, and must continue to have, under any conceivable railroad system, very important rate-regulating functions. Some other functions probably belong to it. But it cannot, as it is now demonstrated, run a rail transportation system made up of any such heterogeneous units, snarled

together in all sorts of fashion. Neither can it run the coal business under the guise of furnishing or withholding cars.

There is no present basis for believing that the Railroad Labor Board will furnish an adequate and successful means of regulating relations between employer and employee. Employer and employee are in a sort of domestic relation: I never knew of a happy family living under a decree of separate maintenance.

This does not mean that Commissions having full executive powers may not successfully function. The Trustees of the Boston Elevated Street Railway system appear to be doing a good job. Their organization is pretty simple. Our railroads, which should be a national highway system, are, in contrast, so complex and snarled that supermen could not make a success of their administration.

We have reached the stage where we should be careful about further extension of the commission idea—particularly of putting administrative and executive functions upon regulatory tribunals: otherwise there is grave danger of a revulsion of public sentiment which will destroy a large part of the real advance that we have made during the past generation. Some people have seriously suggested the repeal of the Interstate Commerce Act; and there is in the present Congress a strong tendency towards exaggerating the existing railroad chaos by rehabilitating discord—promoting State control—over what is or should be essentially a national highway and carrier system. These indications of blind revolt warn us that the next steps should be those which clearly make for efficiency, not merely for an extension of so-called regulatory power.

Relationships Between Commissioners and Utility Representatives.—Perhaps the most delicate matter affecting regulation has to do with the relationships which quite naturally tend to grow up as between commissioners on the one hand and the representatives of the private concerns being regulated on the other, simply because of their necessary day-to-day associations. The way out will not be found except as we face the problem.

Utility Commissions tend to be governed, not by an impersonal viewpoint of the facts and the law, but by either: (1) Utility point of view or (2) public clamor, each equally bad.

Utility commissioners are subjected to continuous, expert and in-

telligent pressure, day in and day out, exerted on behalf of the utility point of view. This pressure is neither apparent nor annoying. The gentlemen who exert it do it informally, conversationally—but continually. Inasmuch as their employment is continuous year in and year out, they are the real experts, and it is difficult for a commissioner not to regard them as such. They drift into the attitude of teacher—guide, philosopher and friend—to the commissioner—the pupil. Once that relationship is established, the rest is easy. The commissioner soon begins to see the utility question from the point of view of the utility itself.

The public viewpoint is not presented thus continuously and steadily after this ex parte fashion. City officials, mayor and city attorneys are impermanent. They are thrust into city responsibilities unprepared and fade out just as they become of value. What small pressure they exert in presenting the public point of view ex parte is temporary, ephemeral and spasmodic. A new city attorney talking with a commissioner occupies the position of a pupil.

Thus the guardian of the public's point of view is taught by the pupil of the guardian of the utility's point of view . . . . .

Advance the problem out of the realm of ex parte discussions in chambers to the actual trial of a rate case. Present in person are the following:

(1) The Commissioner and a representative of both its engineering and accounting staff.

(2) The utility represented by:

a. The manager, long identified with its history and operation. Saturated with its necessities and problems. Salary $10,000 a year.

b. Its chief engineer and staff, witnesses as to value and physical condition of property, its construction and operating needs. Combined salaries $15,000 a year.

c. Its chief accountant or auditor and his assistants, witnesses as to the income account and fiscal requirements of the utility. Combined salaries $15,000 a year.

d. Attorneys for utility, long trained and expert, not only in the law, but the facts, and actually understanding the questions of construction, operation and income and expense statements. Salary $10,000 a year.

(3) The city attorney of the municipality involved, unacquainted with utility books, values and operation, income and expense statements, and at best, nebulous and uncertain as to the law. Salary frequently as low as $1,500 a year.

What chance has this poor fish got? Even before an impersonal and judicial tribunal? What chance, then, before a tribunal that has unconsciously adopted the utility point of view?

Vaguely, he realizes his predicament, and resorts to Clamor. If he is demagogic, he gladly embraces Clamor—newspaper interviews, protest meetings, etc. If he is conservative but dazed, he still realizes vaguely that something must be done—and reluctantly embraces Clamor.

Usually the expert presentation of the utility's case plus the commissioner's utility prepossession wins the case—unless a session of the legislature in pending, then general Clamor may win.

But whatever the decision is in the case, the result is bad. The utility's side has been splendidly presented to a sympathetic commission. The public side has not been presented at all.

If the utility's case is not meritorious, but a favorable decision obtained by the more skillful presentation of its position, the result is bad, of course.

Even if its case is meritorious, the prepossession of the commission, the skill with which the case is presented, worries and mystifies the city attorney, who reads the decision with a realization that perhaps he was out-generaled, perhaps something was put over on him—and he really doesn't know what it all is about, and it's all wrong, gentlemen, all wrong.

An unfair decision against the utility would be equally bad.

Summing up, commissions are generally distrusted by both parties to the controversy, and generally speaking, as now functioning, properly distrusted.

Yet commission form of regulation is better on principle than local regulation or Federal Court regulation. This I announce as a premise without argument.

On that premise can the administrative methods of commission be so changed as to correct the general distrust? Probably so.

A complete factual survey necessarily includes something concerning the caliber of utility commissioners and their political relations. I do not mean "political" in the narrow sense of partisan

affiliations, but "political" in the sense of the influence to which commissioners are subjected and respond by reason of their caliber, their affiliations, the ultimate sources of their appointment and rewards. What goes on in other states is that, there being the above described field of contact, it becomes important to public and to utilities to influence the choice of the commissioners. The utility managers are more conscious of this than is the public, and, more or less deliberately, they exert an influence, through political organizations or otherwise.

Taken in connection with other phases of American public life, the result is apt to be a progressive decline in the caliber of commissioners or a progressively dulled feeling for the public side.

The influences to which the commissioners are subject, leaving aside crude direct attempts to influence them, seem to me to be three, namely:

First—the friendly spirit that inevitably grows up from constant contact between commissioners and the same lawyers, experts and other representatives of the utility companies. There is nothing corrupt about this, but it is often a fact of the situation.

Second—the greater expertness with which the utilities' side is always presented.

Third—the feeling of commissioners that, after their term of office, they will receive employment from utility companies.

Ex Parte Discussions.—Ex parte discussions—discussions with either side in the absence of the other—are fraught with danger. And yet, if we accept the origin of the commission as outlined above, the commission is necessarily and unequivocally on the public side. Hence ex parte discussions with the representatives of the public interest may not be classed with those held, let us say, with the president of a regulated company—especially when a case to which his company is a party is pending.

Where a case is sharply litigated before the commission by opposing parties, I do not believe that a commissioner should entertain ex parte discussion of the issues any more than a judge. However, a commission combines administrative and judicial functions, and I think a commissioner should be readily accessible to the public and prepared to listen to informal discussion at any time upon the

work of the commission, except where a case under litigation is directly involved. Furthermore, I think that when an investigation is instituted by a commission upon its own motion, a commissioner may properly discuss the questions at issue informally with a view to obtaining leads which he may have developed upon the public record of the investigation. Of course, the ultimate decision must be based upon the facts of record.

Members of commissions should not indulge in ex parte discussions in chambers. Commissions should adopt more of the habit of the judiciary in that regard. This is a simple remedy, but in my opinion very important. This would reduce the tendency to yield, subconsciously, to the utility point of view, and would give the public a feeling of confidence that its rights were not to be bartered away in star chamber, ex parte presentations.

The rules should be against any ex parte discussion in chambers of matters before the commission. Even with the earnest attempt to enforce that rule there will be exceptions, and probably proper exceptions. But if an honest effort is made to maintain that rule only the proper exceptions to it will operate. Theoretically, a Commissioner has further liberty in this respect than a judge, but, practically, he should be very careful in his exercise of this liberty, because the free exercise of it either leads him to an ultra conservative utility point of view or drives him to a radical public point of view.

For the reason that the confidence of the public in the integrity, efficiency and public interest of the commission should be cultivated in every way, the commission should not be removed from contact with the public by any false notion that matters before the commission may properly only be discussed in formal hearings. Any such requirement as that would mean that ordinary folks might not discuss them with the commission at all.

I am opposed to private conferences between the Commission and one party to a proceeding and to the consideration in private of pending cases where the public cannot be present, if it so desires. In my opinion, every order of a Commission, which is to have binding force, should be made at a public meeting, where the public can attend, if it so desires. So far as possible a regular time should be fixed for these meetings, and special meetings should be avoided. I do not mean to suggest that executive sessions or conferences should

not be held. Most of the work of the Commission must be done in conference, but I do believe it is wrong to adopt, as the fit strikes one, orders and decisions. This leads to ex parte methods, which are always bad and cause suspicion and distrust.

Delay in Granting Relief.—In the days when John M. Eshleman—to whom this volume is dedicated—was chairman of the California Commission, it was held that "a two-cent stamp starts a rate case." The thought intended to be conveyed by this rather sweeping statement was that the Commission would see through to an adjustment any written complaint from a rate payer. Theoretically this policy is followed by most commissions. But in practice, either through lack of funds or of interest or of a combination of these two factors, the burden of establishing valid cause for complaint is too heavy for individuals—and frequently for municipalities—to bear. Unless methods are devised making it possible for the commission to aid the public to the extent that such aid may be desired, regulation is doomed.

To the fullest extent that its available assistants will enable the commission, it ought to aid the public in the preparation and presentation of the public's case. The utility can always protect itself by a proper presentation of the facts. Its interest is sufficient to lead it to do so. As to the public, the situation is different. Ordinarily, in any rate case the interest of any one individual is not sufficient to justify the expense, or even to justify the loss of time and energy involved in organizing the public for distribution of the cost. The fact that there is no public representation at the hearing of the ordinary rate case does not mean that there is no occasion for dissatisfaction, nor that the public is not dissatisfied. It merely means that the stake of individual consumers is not sufficient to make it worth their while to trouble with the hearing. This is why it has been necessary to give to commissions staffs of experts to make investigations and present matter for the record on behalf of the commission. It is the complete justification for aid to the public which is not extended to utilities.

This matter of public representation is one of the weak spots in regulation. If representation of the public interest is taken up by municipal governments, political considerations are liable to creep in. It is human nature that the party in control should attempt to make something out of the contest through advertising its championship of public rights. If there is no representation at all, on behalf of the public, aside from that made by the commission's experts, the public are likely to feel that the public side has not been presented.

Perhaps something a little different from anything that has yet been attempted might well be tried. The commission might have its experts and public counsel available to aid the public. When rates are to be investigated in any municipality or district, or when service matters concerning which there is a large public interest are to be investigated through a formal hearing, the citizens might be called together by a representative of the commission, and the nature of the inquiry explained, and they might be encouraged to appoint a citizens' committee to avail themselves of the commission's experts and public counsel. This might be done either independently of city officials or in conjunction with city officials, as might seem expedient. The aim ought to be to enable the people locally, through the use of the commission's forces, to get the facts and present them. They would thereby get something of an understanding of the questions involved, and would have a better opportunity to judge of the thoroughness and fairness of the commission's work. It would also tend to some extent to educate the public as to the problems which the utilities have to meet.

The handicap under which the average city attorney operates during the trial of a rate case can be largely removed. At present he meets the skilled engineers, auditors and attorneys of the utility, with no weapons of his own. He is not a trained utility lawyer, he has no engineers and no auditors. He has no witnesses, skillfully to develop the public's interpretation of the evidence.

Give him some. Turn over to him the engineers, the auditors hired by the State. Direct them to prepare their data *solely* from the standpoint of the public. Have a trained utility lawyer, alive to the public point of view, hired by the state to assist the city attorney. In other words, meet a skillful presentation on the part of the utility by an equally skilled presentation on the part of the public.

Then let an honest-minded commission judge between the contestants of substantially equal stature and weapons.

It may be said that accounting departments and engineering departments are now instruments of the public. Theoretically, they are. Practically, they are arms of the commission, not of the localities, and this is a distinction with a difference.

Theoretically, again, the city could hire expert counsel, engineers and auditors. But they won't. And if they did attempt to do so, they would encounter difficulty in finding them. They are all across the fence in the other lot—the utility lot. Not all—practically all.

A commission owes a duty to protect the public interest, and when it finds it necessary to intervene in order that the facts in any given controversy may be fully before it, it should do so, whether its intervention is on behalf of one party or the other. In actual practice, however, the necessity for such intervention will more often arise in the case of the public, since the private companies are usually well equipped for the presentation of all facts favorable to their side.

The matters here discussed fall almost entirely within the field of opinion. Here, as elsewhere in utility matters, the spread between two points of view, both responsibly and numerously held, is too great to make the gathering of factual data profitable. We have simply made the effort to reflect the views of individual commissioners who have faced the problems discussed and have secured the approval of the public.

CHAPTER XI

CO-OPERATION BETWEEN STATE AND LOCAL AUTHORITIES

By Delos F. Wilcox

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Arguments for State Regulation.—The varying fortunes of state regulation in different parts of the country, and the powerful reactions toward municipal home rule that manifest themselves from time to time, suggest the thought that there may be something inherent in the problem of public utility control which makes exclusive state regulation as futile as absolute municipal home rule. The advocates of exclusive state regulation never tire of pointing out certain things which to their minds make home rule impossible and certain other things which make state control desirable. They say that in most sections of the country all or most of the utilities extend their areas of operation far beyond the limits of any one municipality, often taking in a large section of a state, and sometimes even extending into two or more states, and they conclude that this one fact alone puts local regulation outside the pale of intelligent discussion. Then they say that with the utilities serving a vast number of small towns and boroughs, local control is manifestly impossible because of its inherent difficulty and the unwillingness and inability of a small town to pay the cost of maintaining a staff of experts to compile the information and give the technical advice upon which regulation must be based.

On the other hand, they urge the necessity for state regulation upon the theory that the local authorities, being directly

responsible to the consumers of utility service, are unqualified to deal fairly and dispassionately with the companies who render the service. They say that local regulation in effect gives the buyer of utility services the power to fix the price, and that under such circumstances the seller has no chance of getting decent treatment. They say that state control is removed from the vicissitudes of local politics, that the state commissions will be intelligent and impartial, that they are equipped with a corps of experts and are in a position to take a broad view and apply wide experience to the problems of each individual community, and, finally, that the utilities are performing an essential public service and have the right to be protected from the selfish, ignorant and short-sighted designs of those who pay for the service and want to get it cheap.

Arguments for Local Regulation.—On the side of home rule, it is urged that notwithstanding the fringes of service rendered in unincorporated places, public utilities are essentially local and urban in their character; that they cannot function except through the use of the streets over which the municipality should have control; and that the growth of great outspreading operating systems in many cases has been a result, not of normal requirements for efficient and economical service but of promoters' and bankers' schemes to get rich out of consolidations and the manipulation of securities, and of the desire of the utilities themselves to make local control as ineffective as possible. They say that the people who grant the franchises, use the service and pay the bills are the very ones who should exercise control over the companies that serve them. They maintain that the utilities exist for community service, rather than communities existing to be fair spoil for utility companies organized for profit. They say that utility services are vital public functions, inextricably interrelated with the other functions for which the municipality is and should be

responsible; that the control of the streets, the development of the city plan, the protection of public health, the promotion of public safety, the furtherance of civic art, and practically all municipal activities essential to the well-being of the community, are in a large measure dependent upon the development of public utility service and policies in the locality. They say that even from the financial point of view, a public utility cannot ultimately prosper without the good-will and the co-operation of the public which it serves, and that if it is unable to get justice at the hands of the community, it is a proof that it is seeking something more than justice and is unwilling to accept its true position as a servant of the community.

They say that public utility policies are necessarily and properly political questions, in the broad sense of that term, and that state regulation does not and cannot take them out of politics; it merely removes them to a wider political arena where the power of those who have no direct interest in urban utility service can be manipulated in favor of the exploiting corporations which help support the state political organizations; that the state commissions cannot be familiar with local needs and conditions and therefore cannot control service effectively, while the time and expense involved in sending lawyers and witnesses to the state capital on every little matter of service make it impossible for the municipality to supply the information which the commissioners lack. They say, on the other hand, that the commissioners sitting at the state capital, no matter how honest they may be, will be enveloped by a utility atmosphere deliberately created by the public service corporations with their retinue of well-paid, well-dressed, and urbane presidents, vice-presidents, attorneys, accountants and engineers, all of whom make a practice of kowtowing to the commissioners and are ever willing to "stoop to conquer." They maintain that state regulation, through its abrogation of franchise contracts without the consent of the municipalities, is in violation of the

spirit of the constitution, destroys municipal self-government, flouts public opinion, paralyzes local politics, and plants the seeds of economic unrest and disrespect for the rights of property.

Politics Injected Into Utility Question.—The debate rages on, with the utilities unanimous, or practically so, for state regulation, and the cities more and more arguing in favor of home rule. In almost every state the issue takes on a strained and false absoluteness—exclusive state control versus complete municipal home rule. The jealousies between city and country populations and politicians are played upon, and we get the great political seesaw. When the state commissions get unrestricted power, they are apt to exercise it in an arbitrary manner, assuming that they have a mandate to do "justice" to the utilities regardless of what may seem at times like irresponsible prejudices and clamor of local officials and consumers. That adds fuel to the flames, and before they know it, the commissioners are taking the utility point of view, and then when their terms expire, or even before, they frequently get lucrative jobs as experts or counsel for big utility interests, and become hired public advocates not merely of state regulation as opposed to municipal control, but also of private ownership as opposed to public ownership, and of high rates and liberal profits for the corporations. That stirs up public distrust and antagonism, and the utility question straightway becomes a burning state issue. When a new governor is elected, the personnel of the commission is changed and perhaps its powers are curtailed or its policies reversed.[1]

[1] Henry R. Hayes, chairman of the Public Service Securities Committee of the Investment Bankers Association of America, says: "When such unsatisfactory conditions exist, the remedy largely lies in publicity of financial as well as operating facts and in the strengthening, rather than the curtailing, of the authority of state commission control. It would seem safe to say that the commission in the Commonwealth of Massachusetts has operated for the longest time and with the broadest powers over all financial and operating aspects of the utility companies of that Commonwealth. The financial record, the rates and quality of service of those companies, as well as their relations with the public, assuredly offer adequate testimony in favor of broad and active control by a State Commission."

Questionnaire Addressed to Cities and Boroughs in Pennsylvania.—A survey of municipal and utility developments in the United States during the past fifteen years suggests that we must have been taking a wrong tack or we should have gone farther, with all our expenditures of time and money, toward the goal of efficient municipal government and sound utility policies. In an effort to find out from actual local experience the effect of state regulations in one state—i. e., Pennsylvania—upon the municipalities, a questionnaire was prepared which was designed to bring out the essential details of experience and opinion. It was sent out to 486 persons. This questionnaire went to all the 41 cities in the state, and to 175 boroughs, including all above a population of 5,000 and a few below. The inquiry was addressed to 89 mayors and city attorneys, 62 other city officials or ex-officials, 182 borough clerks, solicitors or other borough officials, 94 chambers of commerce, boards of trade, etc.; and 59 college professors, editors and other private citizens.

The persons addressed were asked to submit information with respect to the communities of which they had knowledge on the following matters:

1. Name of municipality.
2. List of local utilities subject to regulation by State Public Service Commission.
3. Local utilities whose rates have been reduced by the Commission.
4. Local utilities whose rates have been increased by the Commission.
5. Local utilities whose rates have been increased by the Commission above the rates specified in the franchises granted by the municipality.
6. Local utilities whose service has been improved by order of the Commission.
7. Local utilities which have been compelled by the Commission to build extensions or make improvements.
8. Local utilities whose outstanding capitalization has been readjusted by order of the Commission.

9. Local utilities whose property has been valued by the Commission.
10. Has the community benefited by the transfer of jurisdiction from the municipality to the Commission?
11. If so, in what ways?
12. Has the community been injuriously affected by the transfer of jurisdiction from the municipality to the Commission?
13. If so, in what ways?
14. In what cases have the municipality and the consumers been represented in the proceedings before the Commission, and how?
15. Has the Commission carried out the policy of organizing a joint board of engineers to report on facts pertaining to costs or values in connection with the valuation of any of the local utilities?
16. If so, how has this plan of co-operation worked out?
17. To what extent has the burden of meeting the utilities' claims in rate cases fallen upon the municipality or consumers?
18. To what extent has the Commission through its own staff assumed the duty of representing the interests of the municipality and the consumers in meeting the claims of the utilities?
19. Has the experience of the community been such as to create a belief that money spent by the municipality or civic bodies in preparing and presenting cases before the Commission has been well spent?
20. Is the experience of the community such as to create the belief that the Commission can and will look out for the interests of the municipality and the consumers without the expenditure of money by them in preparing and presenting their cases to the Commission?
21. Has the municipality been handicapped in the control of its streets, with respect to public safety, public convenience, or the construction of public improvements, by the transfer of jurisdiction over utilities to the State Commission?
22. If so, in what ways and to what extent?
23. Has the transfer of control over utilities to the State Commission taken utility questions out of local politics?
24. Has the transfer to the State of jurisdiction over utilities freed the municipality from embarrassing problems and resulted in more efficient local government?
25. In the case of utilities operating in several municipalities, would

it be practicable to exercise control over them locally by co-operation among the several municipalities affected, or by the establishment of local public utility districts for the purpose?

26. In general, what has been the relation between the municipality and the State Commission with respect to co-operation?
27. Does the Commission have control over municipally owned utilities?
28. If not, should the Commission have such control?
29. Does State Commission control affect in any way the policy of the municipality with respect to municipal ownership and operation?
30. If so, how?
31. General observations, not specifically covered by the above questions.

Analysis of Answers.—As was to be expected in the matter of a questionnaire so detailed and technical, only a small percentage of replies were received from the persons addressed.[2] No effort was made to increase the number of replies by a follow-up system. In all, 4 acknowledgements came back. Careful replies to the questions asked were received from Pittsburgh, Scranton, Reading, Harrisburg, Johnstown and many of the smaller cities and boroughs. The replies received seem to me to be sufficient to throw considerable light upon the status of public opinion in Pennsylvania as represented by city officials and others who may be regarded as primarily interested in or responsible for community welfare. The papers were marked on the following basis:

O	Those giving no information	26
A	Those wholly favorable to the commission and its activities	1
B+	Those favorable to the commission, but recognizing faults to be corrected in the law, or in the commission's personnel or practice	4
B	Those which are neither favorable nor unfavorable, or a fifty-fifty combination of both	8

[2] Regulation of local utilities is a development largely of the past decade. The people generally have really very little knowledge about it. The "Give and take" inherent in the system is not understood as yet. It is doubtful whether this inquiry could have been conducted in any state in the Union so as to get a wider response. The "verdict" is "good for what it is worth."—Morris L. Cooke.

B — Those unfavorable but recognizing some advantages in state commission control..... 5
C Those entirely unfavorable to the commission and the public service company law..... 20

It will be noted that favorable replies were 5 in number, while the unfavorable replies were 25 in number. The larger cities showed considerable differences of opinion, while the boroughs heard from were almost unanimous against the commission and the law. If this inquiry shows anything, it is the apparent failure of the commission to win the support of the little communities which are usually regarded as most dependent upon state regulation for protection. If it be urged that the number of boroughs replying to the questionnaire was too small to be taken as representative, the answer is that the organization of boroughs in Pennsylvania has taken formal and official action demanding the repeal of the Public Service Company law; and that if regulation and the commission had friends among the representatives of the boroughs, they surely had their opportunity to speak up and be counted.

The primary basis indicated for the resentment manifested by the boroughs of Pennsylvania seems to be the fact that under state control as now exercised the little communities are powerless to help themselves through direct dealings with the utilities except to the extent that the utilities are willing. They cannot bargain with the utilities because their franchise agreements as to rates and service requirements are no longer worth the paper they are written on. The utilities in some cases pay little or no attention to the local authorities and take refuge under the protecting aegis of the state commission. The small communities cannot get redress for grievances without traveling to Harrisburg and frequently without going to the further expense, to them quite prohibitive, of producing expert witnesses there. In answer to question 20: "Is the experience of the community such as to create the belief that the

Commission can and will look out for the interests of the municipality and the consumers without the expenditure of money by them in preparing and presenting their cases to the Commission?" only 2 favorable replies were received in the entire list, and they were cautiously or partially affirmative, while 24 sharply negative replies were received.

There seems to be no doubt that in Pennsylvania the local public does not believe that its interests will be adequately served by the commission without local effort and local representation at the hearings. In fact, a considerable majority of the persons making the negative replies to question 20 go much further; for in answer to question 19, they state that the experience of their communities has been such as to create a belief that money spent by the municipality or by civic bodies in preparing and presenting cases before the commission has not been "well spent." Some of them say that "it is time and money wasted." It is clearly a serious situation where communities feel that it is useless even to present their claims and their evidence to the tribunal authorized by law to pass upon them.

Co-operation Between State and Local Authorities Desirable.—It may be said without fear of contradiction that permanent success in the regulation of public utilities cannot be achieved so long as the agencies employed in regulation, either by the methods they use or by their inherent constitution, arouse the antagonism of the public for whose service the utilities exist. The sheer use of state power to abrogate franchise agreements negotiated by the municipalities and to protect the utilities from the necessity of coming to terms with their consumers is an invitation to discord.[3] While it is not

[3] O. B. Willcox, lawyer, New York City, and one time Chairman of the Public Service Securities Committee, Investment Bankers Association of America, says: "The 'power' used 'to abrogate franchise agreements' is the power vested in the courts by the Constitution to prevent the taking of private property without compensation."

to be expected that mere legislation and administrative policies will remove entirely the friction and the causes of friction that flourish in the relations between city and country populations in state politics, it is clear that the only hope of just and effective regulation of public utilities lies in the direction of co-operation between state and local authorities; and any legislation or administrative policies that have the effect of accentuating old frictions or creating new ones are wrong and futile.

It is not the province of this chapter to work out a detailed scheme of co-operation applicable to conditions everywhere. A few brief suggestions only can be given as to a proper distribution of functions between state and local authorities and a few possible provisions for the encouragement of co-operation pointed out.

State Control of Corporate Functions of Utilities.—Public service corporations, like municipal corporations, are creatures of the state. It seems reasonable that the strictly corporate functions of a public utility should be subject to state control. Reference is made chiefly to consolidations, mergers, leases, intercompany agreements and the issuance of stock and bonds. Even these matters may affect construction, service and rates indirectly, and thus come within the circle of municipal interests. To a certain degree, everything that a public service corporation does affects its consumers and the community which it serves, and for that reason notice should be given to the municipality and its right to be heard before the state commission in all proceedings with relation to the issuance of securities by a public service corporation operating within its limits, or in relation to intercompany agreements should be guaranteed. And in this matter, it is important that the holding company, the holder of the holding company, the holder of the holder of the holding company, and so on to the *nth* term in the public service series, should be pre-

cisely on the same footing as the immediate owning and operating company.

State Control of Accounts and Reports of Utilities.—Another matter in which the state ought to have and ought to exercise paramount jurisdiction is the control of forms of accounts and reports. Here again the municipality is vitally interested, because honest and intelligent accounting lies at the very basis of all the public relations of a utility, but the importance of uniformity of accounts as an aid to regulation is too great to be surrendered to any claims that might be put forward by the municipality to a preponderant interest in the accounts of the public service corporations in its midst. But the municipality should have notice and its advice and co-operation should be sought in the establishment of accounting systems; and its right to examine the books, records and property of the corporation should be as broad as that of the commission itself. It should also have the right to require special reports from the corporation, subject perhaps to the company's appeal to the commission for a review of the matter in case the demands of the municipality are deemed unreasonable or unduly burdensome.

In any event, the municipality should have the right to initiate before the commission any changes which it may wish to have made in the general accounting rules, and to propose any special rules or requirements applicable to a particular company or companies in which it has an interest. It should have the right to require a segregation of the company's property account, revenues, expenses and operating statistics to the area within the municipal boundaries or to the local area of service.

Control of Rates as Between State and Local Authorities.—The chief bone of contention in the regulation of public utili-

ties and in the struggle of rival authorities for jurisdiction is the matter of rates. The local public utilities of the country collect about three billion dollars annually from their consumers. That is a prize worth fighting for. A difference of one cent in the street car fare or of half a cent in the electric light rate, seems insignificant, but it means millions to the utilities. The proverb is that "constant dripping wears away the stone," but it might well be paraphrased to express the profound truth that "constant tapping wears away the purse." This is the most important and the most difficult of the usual problems of public utility control. There is no doubt that here is a field for active co-operation between state and local authorities.

One can hardly agree with many of the ultra home rule men who would make local jurisdiction over public utility rates exclusive. Yet it cannot be said that this method, as embodied in the practices of the state of Iowa, has been a failure as compared with exclusive state regulation in other states. But in Iowa municipal jurisdiction over rates does not extend to all utilities, and, of course, an appeal lies to the courts. It is scarcely to be believed that the control of rates can properly be taken entirely out of the hands of the local authorities; nor that the method of regulating rates by enforcible contracts ought wholly to be discarded. In very many cases public utility rates, as a practical matter, can better be arranged by contract for limited periods, say, not to exceed five years, than by the expensive, dilatory and unsatisfactory process of valuation and rate-fixing by a commission or a court.[4] The extreme fluctuations in cost which resulted from the World War made the enforcement of contracts difficult and, in some cases, impossible either with or without bankruptcy. Under such abnormal and extraordinary conditions some flexibility should be provided to enable the utilities to continue functioning, but it

[4] O. B. Willcox says: "Capital will flow into the utilities only if the capital already invested is given protection and a fair return. It cannot ordinarily be secured in bargaining against the threat of confiscation."

is the community itself that suffers most from a breakdown of service, and surely the urban consumers do not need to be told by a state commission the advantage of having the street cars running, the telephones answering their calls, the electric lights burning, etc.

Rate Contracts for Limited Period Between Local Authorities and Utilities.—It is folly to assume that the people of any municipality are so stupid as not to be guided by self-interest in a matter of this kind when the facts are made clear. Therefore, rate contracts should be permitted for a limited period of years, between the local authorities and the utilities, and such contracts should be absolutely enforcible unless modified by the mutual consent of the parties.[5] The co-operation of the state authorities and the protection of any general interest involved might be secured through a provision that such contracts should be submitted to the state commission in advance for advice, and the commission might be given authority to disapprove or reject a proposed contract where the interests of the state or of other municipalities would be adversely affected thereby.

Furthermore, if either the municipality or the utility should find the contract burdensome before the end of the period for which it was negotiated, on account of radically changed conditions, and if no adjustment could be effected through direct negotiations, either party ought to have the right to appeal to the state commission to investigate the matter, make its recommendations and use its good offices to bring about a proper adjustment. But this matter of a utility's appealing to the federal courts or to the state commission to set aside the obligations of its contracts and override the will of the municipality

[5] Henry R. Hayes says: "It is inconceivable that investors would be willing to place funds in utility bonds or stocks under these conditions."

is a sower of dragon's teeth.[6] The solution does not lie in that direction. Rate contracts might take the form of local ordinances accepted by the utility, or of formal agreements between the utility and the municipal authorities. Possibly rate regulation, in the absence of contract, should take the form of local ordinances. The commission should not be given authority to fix the rates. The commission should act in an advisory capacity, and should recommend rates to the municipality upon request by either or both parties. The rate-fixing body should be the local authority, and in case its decisions were unacceptable to the utility, an appeal would lie to the courts.

In any event, the state commission ought not to exist as an arbiter between the municipalities and the public service corporations, but ought to exist as a state agency on the same side of the fence as the municipal authorities, and equipped with facilities to be helpful in co-ordinating the local interest with the state-wide interest in all matters of public utility regulation. A municipality is bound to do justice just as much as a state is bound, and nothing can be accomplished towards better government and more intelligent civic development on the assumption that local governmental agencies are not to be taken seriously, but are to serve merely as a safety-valve for letting off political steam.

Desirability of Local Authorities Having Ultimate Control of Utility Service.—Service is what the utilities are for, and it is service both of the community as a whole and of the individual consumers who are a part of the community. Service is what the public wants and must have. It is theoretically and practically absurd[7] to give a remote centralized agency

[6] O. B. Willcox says: "The 'dragon's teeth' are the unsound and unwise attempts of the ignorant to excite the public to demand rates less than the utility service can be provided for, compelling appeals to high authorities to prevent the confiscation which is prohibited by our Federal and State Constitutions."

[7] L. H. Kinnard says: "If so, the Congress of the United States, in creating and fostering the Interstate Commerce Commission, and the legislatures of some forty-odd states, in creating and fostering state commissions, have been and are guilty of the absurdity, and only the authorities in Iowa, Texas and Delaware have saved themselves from being grotesque."

like a state commission exclusive power to prescribe standards of service or special service requirements for the hundreds of separate local communities of a great state like Pennsylvania. The ultimate control of service at the consumer's end of the works must be vested in the local authorities; but in this field also, as in the matter of rates, there is room for co-operation and infinite helpfulness on the part of the state. General service standards may properly be formulated and recommended by the state commission, and in matters of special difficulty, such as the requirement of a costly improvement or extension of plant, either the city or the utility should have the right to appeal to the state commission for an investigation and recommendation. Then, if the final decision of the local authorities, on a matter not covered by contract, is deemed to be so unreasonable as to violate the utility's constitutional rights, an appeal will lie to the courts.

Elimination of Competition Inadvisable.—The state commission, through the certificate-of-necessity law, should not be given absolute and arbitrary power to prevent competition in the public utility field in any particular municipality. Direct competition, either by a rival company or by the municipality itself, is to be looked upon as a confession of impotence in regulation. At the same time, a city ought not to be prevented from establishing a municipal plant in competition with an existing private plant where it is advantageous for it to do so.

The great curse of the utility business is the initial and persistent overloading of the capital account, and the neglect of the depreciation reserves and amortization necessary to preserve the integrity of the investment, which have been characteristic of most of the utilities. The swelling of values and recognized capital runs absolutely and violently against the public interest; for if there is anything fundamental in the development of public utilities as the servants of urban com-

munities, it is the necessity for conservation in the matter of capital costs. The persistent drive for capital profits—the swelling of valuations out of all proportion to investment—is the characteristic of public service corporations most fundamentally and most dangerously hostile to every sound principle of public relations with the utilities.[8] Hence, it cannot be sound public policy to make it necessary for a community, ready to serve itself in these matters, either to acquire an unsuitable or overvalued existing plant from a private company, or else to suffer the physical inconvenience and the civic paralysis due to letting the private company continue indefinitely to occupy the field without being able to function properly.

The city's right to compete with an existing utility, either indirectly through the provision of substitute service, or directly through the establishment of a municipal plant equipped to render the same kind of service, ought not to be curtailed, except where such competition is prevented for a limited period by contract. It might be proper to require the municipality to give the utility certain notice of its intention to compete, and if appropriate to the circumstances, suggest as a possible alternative a course of action by the company which would make competition unnecessary. The matter might be submitted to the state commission for recommendation. It is proper that every reasonable precaution should be taken to insure the community's understanding of the facts, and of the implications of a competitive policy; but the fundamental fact is that the utility exists to serve the community, and the community's deliberate and enlightened judgment ought to control its policy in these matters. A conservatively financed, efficiently operated, up-to-date utility, with reasonable rates, never need fear municipal competition; for competition, except as a last resort, is against the community's self-interest.

[8] A number of commentators have taken exception—sometimes unqualified—to the foregoing sentences.—Morris L. Cooke.

Control of Utilities a Local Function.—All the suggestions made in this chapter are based upon the recognition that public utilities are doing public business, and that the service of the communities they serve is paramount. The state and the cities are losing their struggle to establish this principle definitely and beyond cavil, by reason of their being at loggerheads all of the time as to how authority shall be exercised and by whom. The political antagonism between urban and rural populations is not altogether a natural and spontaneous development. It results in part from the generalship of the utilities, acting upon the military maxim: "Divide and conquer."

The control of public utilities is fundamentally a local or urban function, because public utility service has been primarily local and urban. The state's job is to help, and to that end a well-equipped state department or commission should be maintained, not to override and antagonize the municipalities, but to advise them and help them with accumulations of knowledge and with varied expert services. To the extent that the state has recognized this fact and has acted accordingly, it has been rewarded with the gratitude and support of the municipalities.

CHAPTER XII

TECHNIQUE OF CONDUCTING ACTUAL CASES [1]

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State and Federal Control of Utilities.—While regulation of public utilities is largely a municipal or state function, the questions at issue are often such as involve the national government. In view of this fact, before taking up the technique of rate cases, a brief survey of the present situation as regards state and federal regulation is desirable, particularly in connection with the survey of state and municipal regulation.

Under the provisions of our federal constitution with respect to the powers and duties of states and nation, public service companies are subject to regulation at the hands of both federal and state governments—by the states as to intrastate activities and by the federal government as to such activities as cross state lines. In case of a conflict between federal and state authority the federal power dominates. On the other hand, the power to regulate intrastate commerce as such belongs to the states alone. The federal government may touch such commerce only when found necessary for the purpose of protecting and fostering interstate commerce.

In practice, however, the division of responsibility between state and nation as regards the regulation of public service companies is determined by the feeling of the nation as to what the public interest demands. Up to the present time the federal government has not gone nearly so far in the regulation of public utilities as it might constitutionally go. It has

[1] This chapter offered peculiar difficulties, first, in the gathering of the data, and then in presenting them in comparable form. It is frequently difficult to secure and weigh impartially information of the kind used here for purposes of illustration. Dr. Bradford has handled an altogether unique assignment in admirable fashion.—Morris L. Cooke.

largely taken over the control of steam railroad transportation companies but it has done comparatively little with respect to other types of public service companies.

As regards utilities other than steam railroads the Interstate Commerce Commission either has no powers or its powers are much less extensive and as yet have been exercised to a limited degree. It has broad powers over pipe lines, and may regulate the rates of cable, telegraph and telephone companies and sanction consolidation of telephone companies. On the other hand, it has no jurisdiction whatever over water, gas, and electric power companies, and its claim of jurisdiction over interurban electric railways is as yet undetermined in the courts. No need has yet been recognized, it may be said, for federal regulation of water, gas, or electric companies. In the absence of federal regulation the states may regulate the rates of such utilities, each within its own borders, even when the water, gas, or electrical energy has been carried across state lines.

The Interstate Commerce Commission and Railroad Rates.—The course of the federal government, however, with respect to the regulation of steam railroads has a degree of significance in so far as suggesting possible developments in the regulation of public service companies in general.

Regulation of steam railroads by the federal government did not begin until 1887, half a century after the development of railroads, with the creation of the Interstate Commerce Commission. Since the establishment of the Commission, however, its power has been largely expanded. While its authority in the main is limited to public utilities operating between different states, under certain conditions it can exercise control over intrastate rates. The first instance of this authority came 25 years after the commission was established. Certain freight rates established within the borders of Texas

by the Texas Commission were found to cause undue discrimination against Shreveport, Louisiana, because they were so much lower for corresponding distances than the interstate rates which citizens of Shreveport desiring to ship into Texas were obliged to pay. The Interstate Commerce Commission ruled that the rates in question violated the federal act, and the order was upheld by the United States Supreme Court.

The passage of the Transportation Act in 1920 brought further confirmation of federal power to regulate intrastate rates in connection with the protection of interstate commerce. After the passage of that Act the Interstate Commerce Commission authorized rate increases throughout the country estimated as sufficient to produce for the carriers a revenue of 6 per cent, the percentage of return which had been fixed in the Act. Most of the state commissions took action substantially allowing corresponding increases in intrastate rates, but a large number of them, 30 in all, failed to permit the full percentage of increase in rates allowed by the federal commission. As a result of petitions from the carriers the Interstate Commerce Commission finally issued orders under which the carriers advanced intrastate rates to the interstate level, and these advances were later sustained by the United States Supreme Court in a case brought by the state of Wisconsin. It should be noted that here, as in the Shreveport case, the federal commission's action was based on the ground that its orders were necessary in the interests of interstate commerce.

Co-operation of Federal and State Authorities.—It should be noted also, however, that the need is generally recognized for some local regulating agencies through which the federal commission may act in matters that relate strictly to interstate commerce but are yet of local character. Whether existing state agencies can be utilized or whether additional federal agencies must be created is a question. In this con-

nection interest attaches to a joint report recommending a plan of co-operation between state and federal commissions, drawn up, after the decision of the court in the Wisconsin railroad rate case, by a committee from the Interstate Commerce Commission and a committee representing the various state commissions. The joint report was adopted by the Interstate Commerce Commission and incorporated in its report to Congress in December 1923. It was also adopted by the various state commissions. It contained, among other matters, provisions for informal joint conferences and formal joint hearings in matters pending before either the federal commission or state commissions and involving points of interest to both. It is significant as evidencing a strong desire for co-operation on the part of both state and federal authorities in bringing about the best possible results in the way of regulation under what was found to be the law.

Study of Typical Cases.—As stated in the opening paragraph of this chapter, the regulation of public utilities in many cases goes no higher than the state authority. It is only the major problems in some way related to interstate matters which come under federal jurisdiction. But the average citizen has at best a very hazy idea as to what is involved in a typical rate case or in seeing through to a decision any other major action before the public service commission. It used to be said in California in the early days of regulation, "a two-cent stamp starts a rate case." If that ever was true in California, it certainly has rarely been true elsewhere. As soon as a matter before the public service commission reaches the stage of a formal complaint, there is entailed on those who would successfully prosecute the public interest an amount of trouble and expense that acts as a decided deterrent against such proceedings.

In an effort to visualize what is involved the following

analysis has been made of a number of cases which have been before the Pennsylvania Public Service Commission. Of course the Pennsylvania experience is typical of some forty other states practicing regulation. There have been chosen for this purpose matters in which there has been a considerable degree of public interest, cases arising in different sections of the state and in connection with different classes of utilities.

While the cases chosen are fairly typical, due allowance should be made for the fact that these are but twenty out of over 1,300 decisions, resulting from formal complaints before the Commission. Of course, this is exclusive of perhaps 5,000 informal complaints which never reached the hearing stage. It will be noted that in the following analysis no attention has been paid to the content of the decisions. We have paid attention rather to the conditions and procedure under which the litigants—public and private—prepare typical cases and the manner in which these cases are handled before the Commission. We are interested here primarily in seeing the relative advantages and disadvantages under which the public and private litigants labor. Only by a study of one case after another as it threads its way from the filing of the complaint to the final decision—sometimes before the Superior Court of the state or perhaps even before the United States Supreme Court—can we provide that breadth of view with which legal provisions and administrative practices can be weighed.

How a Utility Case Is Carried On.—When a citizen writes to the Public Service Commission of Pennsylvania, for example, making complaint against existing or proposed rates, service rules or practices, his letter constitutes an informal complaint, unless it is accompanied by an affidavit properly sworn to, and is otherwise in the form prescribed by law. As an informal complaint, the custom of the Commission is to send a copy of it to the company complained of. When the company

replies to the Commission, the Commission sends a copy of this reply in turn to the person who wrote the first letter. Here the matter may rest, with or without being cleared up to the satisfaction of the person complaining. In some instances, differences are adjusted in this way. For the most part, however, informal complaints do not get very far; the Commission cannot issue an order until the complaint is made formal and presented to it in the form prescribed by the utility act, and hence it does not feel called upon to spend much time investigating the importance or soundness of informal complaints. The formal matters which come before the Commission prepared in proper form and accompanied by an affidavit, are divided into three classes—and listed in three records or "dockets":—(1) complaints, (2) applications, and (3) municipal contracts. Frequently a large number of formal complaints are made in respect to the same matter by different parties and afterward consolidated in one case, so that the number of the decisions rendered by the Commission are in many respects more significant.

The Formal Complaint.—As soon as a formal complaint is filed, the Commission starts active operations. Copy of the complaint is sent to the utility company complained against, and after its answer is received, the case is on. A time is set for a hearing, and one or more Commissioners is assigned to the case, or the entire Commission may sit to hear it. The person or public body complaining presents its case by its attorney, and brings forward testimony; the company cross-examines witnesses and brings forward its own, very much as before a court.

In cases involving rates, the complaining party frequently calls for a valuation of the property as a basis for determining what is a fair and proper schedule of charges. The matter is argued by counsel for the company. If the Commission de-

cides that a valuation shall be made, the work starts. Frequently the company makes the inventory, sets the worth of each item, and finally fixes the value of its entire property at a certain figure. For this work it may employ outside engineers or accountants to assist those already on its staff. The city or other complaining party then has a chance to examine the inventory, pricing and appraisal, and attempts to point out weak spots or errors. The Public Service Commission may have a member of its engineering or accounting staff then go over the items, inspect the property or examine the books of the company, and report to the Commission. The company usually claims a valuation greater than that of the physical property, asking an allowance for value as a going concern, or for early losses, or urging the inclusion of costs of selling the securities of the company or other expenses of promotion as part of legitimate costs.

It is no purpose of this chapter to discuss the merits of these matters, but only to paint a picture of what a utility case involves. After the company accountants and engineers have presented their figures, the city's engineers and accountants have questioned or refuted the items involved, and the Commission's engineer or statistician has reported on his part of the case, the Commission takes the entire matter under consideration. Its members discuss the various phases of the case, and come to a conclusion regarding the value of the property, and reasonable rates to allow in order to yield a fair return on that value. One of the Commissioners is assigned to prepare a report of the case, and the Commission issues its decision, dismissing the complaint or sustaining the complaint in whole or in part, and directing the company to prepare a new schedule of rates or rules in accordance with the decision, to go into effect on a certain day set; or the Commission takes other appropriate action.

Engineers and accountants are manifestly important factors in making clear the items involved in so intricate a matter as a utility rate case with valuation, as necessary to the city as to the company. And it is also important that the representatives of the public side be afforded access to the records of the company, in order to ascertain what those records show, the company starting with the great advantage of having these records in its possession. And there are several other such matters in respect to which the average citizen wants to see conditions substantially equal to start with as between the private and public sides. Then, he argues with reason, the deciding factor will be only the merits of the questions involved.

Points Covered.—It is to answer his questions in regard to the conditions under which utility cases are tried that this analysis of cases has been made. The points in respect to which the cases have been analyzed include the foregoing and others, the questions asked in respect to each case being as follows:

1. (a) Subject of complaint or application.
   (b) Name, address and affiliation of representative of the public interest.
   (c) Counsel for private interest.

2. (a) Length of case, as shown by dates of start and conclusion of proceedings.
   (b) Schedule of more important hearings.
   (c) Length of time required to make inventory and appraisal, if made.
   (d) Was the inventory, appraisal or other valuation data prepared and submitted to the Commission by an engineers' valuation board or conference representing the parties and the Commission?
   (e) Was the case appealed; if so, what was its legal history and final decision?

3. Expert assistance and costs:
   (a) Was it difficult to secure experts or witnesses, and why or why not?
   (b) Names of experts on both sides.
   (c) Was it difficult to secure funds for public side?
   (d) Total amount of money spent by representatives of public interest and objects for which expended.
   (e) Total amount of money spent by representatives of private interest.

4. Physical volume of testimony and exhibits—as measured by number of pages or space occupied.

5. Was access freely given to company records or information supplied readily?

6. To what extent did the Public Service Commission:
   (a) initiate proceedings, or
   (b) itself make examinations, and introduce witnesses from the staff of those engaged by it?

7. Are there any other points in respect to which the representative of either side appeared to be at a disadvantage as compared with the other?

The record in each case was carefully examined in respect to those points on which it contained information; in respect to 3 (a), 3 (c), 3 (d), and 5, representatives of the public interest were consulted; and for 3 (e) information was secured from the Commision or from the Companies.[2] The broader facts developed by this analysis relate to the time required to initiate, carry on and conclude utility cases, the securing of needed experts and funds, and access to company records.

Length of Cases.—The length of time which utility cases take is one of the first striking facts which stand out from this study. The average time required in the cases covered in this report, which are the more important cases, is between two

[2] Details in regard to the various cases investigated will be found in an appendix filed with other exhibits accompanying this study in the State Library at Harrisburg.

and a quarter and two and one-half years, as shown by the table given below. It is not contended that this average applies to a majority of all the cases tried before the commission.

TABLE OF LENGTH OF CASES

Cases	Subject	Time before Public Service Commission	Remarks
Philadelphia Electric Case	Electric lighting rates and partial appraisal.	1 year, 8 months	Settled by agreement: approved by Public Service Commission.
Pennsylvania Gas Case	Natural Gas rates and valuation.	4 years, 1 month	Appeal took nearly two years more; not yet decided.
Philadelphia Rapid Transit Co.	Trolley fares and valuation.	2 years, 6 months	
Philadelphia Turnback Case	Curtailment of passenger service	2 years, 1 month	
Reading Transit & Light Co.	Trolley rates and valuation	3 years, 11 months	
Metropolitan Edison Co.	Commercial power and lighting rates and valuation	3 years, 8 months	Settled by agreement; may be opened again.
Luzerne County Gas & Elec. Co.	Gas and electric rates and valuation	3 years, 10 months	Partial decision.
Scranton Ry. Co.	Trolley rates and valuation	1 year, 7 months	Appealed; not yet decided.
Wilkes-Barre Ry. Co.	Trolley fares and valuation	2 years, 6 months	Other rates fixed in Jan., 1923.
Hyde Park Gas Co. (Scranton)	Gas rates and valuation	1 year, 4 months	
Ziegler *v.* Phila. Suburban Gas & Electric Co.	Gas rates and valuations	4 years	
Pittsburgh Rys. Co.	Trolley fares and service and valuation	2 years, 9 months	Appealed.
City of Pittsburgh *v.* Duquesne Light Co.	Lighting and heat rates and valuation	1 year, 11 months	
Ben Avon Water Case (Ohio Valley Water Co.)	Water rates and valuation	2 years, 3 months	Appeals took 4 years longer.
City of Pittsburgh *v.* Bell Tel. Co. of Pennsylvania	Telephone rates	2 years, 9 months	
Borough of Ellwood City *v.* Ellwood Water Co.	Water rates and valuation	1 year, 10 months	
Borough of Verona *et al v.* Suburban Water Co.	Water rates and valuation	1 year	
Buffalo and Lake Erie Traction Co.	Fares and service	2 years, 6 months	
Borough of Conshohocken *v.* Springfield Water Co.	Water rates and valuation	3 years, 11 months	

Average time 2 years 6 months

The average length of these twenty rate cases is about two years and six months. This seems a rather long time as an average of so many cases. Even though it does not purport to be the average of all the cases tried before the Commission, the question arises, Why does so long a period elapse in so many instances between filing the complaint and rendering the decision?

Causes of Long Time Required.—There are a number of reasons for this length of time required to try utility cases.

1. Size of Properties Involved.—An important reason is undoubtedly the extent of the properties involved, and the minuteness with which valuations of property are made. In rate cases involving valuation, the inventory, pricing and appraisal of items aggregating millions of dollars necessarily takes considerable time. The more extensive the properties involved, the more time required. Under current practices every bolt and nut and piece of machinery has to be inventoried and priced exactly, and then an appraisal of the whole property arrived at. Central stations and substations with their equipment, transmission lines, including poles and wires, transformers and meters; gas plants with their manufacturing apparatus, distributing mains and pipe lines; water works, with their reservoirs or intakes, filtration beds, pumping stations, mains, and meters; or street and interurban railways, with their generating stations, carhouses, rails, ties, poles and wire, switches and turnouts—these are only a few of the items which must be counted, listed, inspected and valued; and the enumeration of the physical items involves time and labor. In the Pittsburgh Railway case, for example, in which the company contended for a valuation of $70,000,000, and the city for $48,000,000, the Commission finally allowing $62,500,000, the inventory and appraisal, even with the engineers' conference,

required two years of the two and one-half years which the case took.

The time consumed in making the inventory and appraisal has been due in some instances, however, to a multiplication of valuations. In the Reading Transit and Light case three successive inventories and appraisals were made by three different concerns for the company, the case dragging out for about four years. In both the Pennsylvania Gas case (a different case, involving the valuation of gas lands) and the Buffalo and Lake Erie Traction case, there were, according to the city solicitor of Erie, "three separate inventories and pricings, one by the company, one by the city, and one by the representatives of the Public Service Commission, all based on the company's books or examination of the physical property." And, he adds, "two-thirds of the cost of experts and engineers for the city could have been saved by the Commission itself doing the original inventory and pricing work, the only work which would have remained in the case being the arguments by city and company regarding the intangibles."

When it comes to reaching some of the less accessible assets such as pipes and conduits underground, estimating depreciation and real estate values for a given purpose, or pricing intangibles such as "going concern" value, time is again required for the exercise of the judgment needed in respect to these items. This is all the more true where the claims of the company and of the city as to the valuation of the property differ widely.

In the Philadelphia Rapid Transit valuation case, the company claimed the value of its property to be $290,000,000; the city, between $90,000,000 and $150,000,000. In the Wilkes-Barre Railway case the Commission found a value of about $6,500,000, while the company had asked for $9,000,000, and the city set the figure at $5,000,000.

Where the contending parties are so far apart, it takes time to discover just where the differences lie.

Engineers' Conferences.—The engineers' conference or valuation board has undoubtedly been a time-saving factor in a large number of cases. In the Pittsburgh Railway case, for example, in which the representatives of the city and the company met with the chief of the Bureau of Engineering of the Commission and agreed on a plan of procedure, this plan is regarded by attorneys as largely responsible for holding the time required for the inventory and appraisal down to two years. The special counsel for the city adds, however:

> The work was done too minutely. Three months after the case began, I had arrived at a judgment regarding the approximate value of the property of the company, which was not materially changed by the additional year and a half of intensive work of the engineers' valuation conference in making and pricing a detailed inventory.

2. Lack of Public Experience.—From the statements of city solicitors and other representatives of the public interest, it appears that there are other causes responsible for the length of time required for utility cases. One is the lack of experience of cities in the efficient conduct of utility cases. The problems in these cases frequently involve a combination of engineering, accounting and financial features, which are somewhat outside of the more strictly legal experience of the average lawyer or city solicitor. To analyze them successfully requires technical knowledge and ability of a particular kind. In many instances this fact has not been appreciated by city authorities until the case has been under way for some time; and then it has been necessary to wait until the proper expert assistants have been secured, to whom opportunity must be afforded to become acquainted with the case.

3. Changing Representatives of the Public Interest.—The public labors under the further disadvantage of changes in local politics, which often result in the removal of a city attorney familiar with the facts, while the case is under way, and his replacement by a lawyer unacquainted with the situation, and perhaps of less force or experience. Changing counsel thus tends to further increase the time otherwise required by the city to properly present its complaint. In the Scranton Railway case, the solicitor and his assistants were both out of office when the case came to final argument almost four years later. In the Pennsylvania Gas case, the city solicitor who brought the suit was out of office during two years of its continuance. Even where attorneys are unusually capable and persistent, changes such as these necessarily work against the effective prosecution of the public side. They may be offset to some extent by the continued employment of a competent expert in the case from its early stages.

The closer degree of co-operation attainable by corporation attorneys who have worked together in the same company or associated companies, gives the private party a further advantage.

In the Luzerne County Gas and Electric case, in which seven boroughs (including Wilkes-Barre) joined forces, there was no satisfactory organization representing the boroughs of the considerable array of counsel, and the work finally fell upon one or two attorneys. Only their ability and public spirit provided leadership which enabled the case to go forward and be properly presented. In the Borough of Plymouth *v.* the Wilkes-Barre Railway Company, in which an even larger number of boroughs were complainants, the labor of presenting the public side fell upon three lawyers, who finally worked out a plan of co-operation which met with the approval of their borough councils.

4. Intentional Delays.—Another reason which is regarded by a number of representatives of the public interest as a factor of no little importance, is the willingness of some utilities not to have cases expedited.

At a time when operating costs are falling, the continuance of a rate fixed two or three years previously affords a gradually increasing margin of profit, which companies are naturally slow to give up. The longer the case lasts, the greater the margin. It is on this ground that counsel for the city explains in the Philadelphia Rapid Transit case, for example, the spending of a half day on the cross-examination by Company counsel of an accountant regarding an item of $284 invested in a non-constructed company, which item the city was willing to concede as too small to haggle over. The day previous half the time was spent on a similar item of $92, which the city was ready to similarly concede to the company. Other cases have been called to our attention in which the same explanation is offered as accounting for dragging out the case. "Power in the hands of the Commission to put into effect temporary rates or regulations, pending the decision, would remove a large share of this incentive to delay."

One result of the slowness with which cases are tried is to keep in force for months after complaint has been made, the rates, service conditions or regulations complained of.

5. Difficulties in Securing Expert Assistance on the Public Side.—Another factor making for delay has been the difficulty of getting competent and experienced experts on the public side. The replies to a question on this point, put to the representatives of the public interest in the cases examined, were that "most of the engineers and accountants experienced in electric lighting, gas, water and other utilities are in the employ of private companies or expect to be so

employed and for that reason they are unwilling to appear on the public side."[3] Statements on this point were quite definite.

In the Philadelphia Electric case, for example, "it was very difficult to secure experts who were willing to be employed on the public side; many of those approached having been already retained by the company or affiliated concerns."

In the Philadelphia Rapid Transit case, the assistant city solicitor in charge says it was with great difficulty that they were able to find a reliable engineering firm who could be hired by the city. In the Pennsylvania Gas case, the city solicitor of Erie states:

> We combed the field to get experts or witnesses who would appear on the public side, regarding the value of gas lands, but without success. Nearly every gas engineer, operator or driller in this section was either employed or affiliated with some natural gas company, or had a contract or lease from such company, and was unwilling to testify for the city.

In the Scranton Railway case and the Hyde Park Gas case (Scranton) "the fact that the city got track of a reliable expert, at an early stage of the proceedings enabled it to proceed with its case more rapidly than would otherwise have been possible." The same is said to be true of the expert employed at Wilkes-Barre by the boroughs in both the lighting and traction cases. "We had great difficulty in finding a reliable engineering or accounting firm," says the city attorney of Reading, "to help us in our case here against the trolley company, and not until

[3] Attention has been called to this fact by public officials and engineers with experience in this field at various times during the past ten years. Morris L. Cooke, for example, Director of Public Works of the City of Philadelphia, 1914-1918, stated in a paper read before the American Society of Mechanical Engineers (December, 1914) that it is "practically impossible to secure the services (in municipal engineering) of those with reputations already made in the electrical field." Again, "in the choosing of witnesses for the city side in rate cases, the field is extremely limited. . . . In municipal utility rate cases, the public must depend for their experts on the relatively few men of high standing and broad experience who work for publicly owned and operated companies or those even rarer men who for one reason or another, as for instance, because they operate competing plants, have broken away from the system which controls the viewpoints and activities of the great majority of men who serve the private companies. . . . It is only fair to say that the reluctance of competent engineers to advise the cities or testify in their behalf is in very large masure due to a feeling that even in different cases it would be indiscreet for a man to represent both the public and the private interests." (Lecture given at various universities in 1915, and published under title "Snapping Cords," p. 31, 32, 33.)

we found a competent man in this field could we proceed." The same situation arose in the Metropolitan Edison case, in which the same expert was finally employed. "We were not able to find an expert until some time after we began our search," says the attorney for the public in Ziegler *v.* Philadelphia Suburban Gas Company. "Then we were obliged to get an engineer with a smaller equipment. We could not afford the big engineering concerns and therefore it took more time for our man to do the necessary work than if we had had a very large concern. In that regard we were handicapped also."

In view of the almost unanimous opinion of the representatives of the public interest in this matter, it is impossible not to conclude that they regard facility in finding experts as a considerable advantage to the company side.

"In some fields, particularly water works cases, it is not so difficult for cities to get experts and engineers who are satisfactory as in others, such as electric railways," said C. K. Robinson, special city solicitor for Pittsburg. The reason for this is partly the older and more established character of water works operation, and partly the fact that so many cities operate their own water works, and the experience of their engineers is available to other cities. The opposite is true of electric railways. Electric lighting and gas occupy a position in this respect part way between water works and electric lines.

While there are now a considerable number of experts on the public side of established character and of wide experience, some of whom have served as state Public Service Commissoners—nearly enough, some believe, to supply the need for this type of public counsel—it is clear from the foregoing statements that at least the cities have not known where to go to find them. There is no central clearing house for these matters, and only the more active and resourceful city attorneys have succeeded in finding the high-grade specialists required.

Moreover, in rate cases which involve the making of an

inventory of property, its pricing and appraisal, for which trained engineers or accountants are needed, familiar with utilities' property, equipment and materials, knowledge of inventory and pricing are only half the requirements, the other half being the possession of the public point of view in respect to utility accounting. Intangibles, such as "going value," "reproduction cost new," and items like "costs of promotion," and "bond discount and brokerage" are always put in by the company at a high figure. It requires experience to know how to treat these intangibles in valuation cases. The scarcity of men who possess the public point of view along with adequate technical knowledge is another reason therefore why there are not more experts available on the public side.

Funds Available for Public vs. Private Expenses.—To what extent larger funds have been available on the private than on the public side, and the difficulties of the latter in raising funds to present its cases adequately, is another point in regard to which it was attempted to get definite information. The following table shows the cost of cases for which

Case	Expenditures	
	Public	Private
Philadelphia Electric Case	$41,656.36[a]	$286,045.62
Ziegler *v.* Philadelphia Suburban Gas Co.	15,000.00	75,000.00[b]
Scranton Ry. Co	17,000.00	30,000.00
Hyde Park Gas Co	8,000.00	13,909.10[c]
Luzerne County Gas & Electric Co	20,000.00	50,000.00
Wilkes-Barre Ry. Co	3,290.00	25,465.90[d]
Turnback Case (Phila.)	60,000.00	.....
Pittsburgh Rys. Co	125,000.00	400,000.00
City of Pittsburgh *v.* Bell Tel. Co	75,000.00	300,000.00
Phila. Rapid Transit Valuation	250,000.00	600,000.00[e]
Reading Transit & Light Co	22,500.00	65,000.00
Metropolitan Edison Co	57,000.00[f]	100,000.00
City of Erie *v.* Pennsylvania Gas Co	25,000.00[g]	.....
City of Erie *v.* Buffalo & Lake Erie Traction Co	7,000.00	14,134.84[h]
Borough of Emsworth & Ben Avon, *et al.*, *v.* Ohio Valley Water Co	18,000.00	67,919.52[i]
Borough of Tyrone *v.* Tyrone Gas & Water Co.	6,000.00	.....

exact or approximate information could be secured for both sides.

(a) The Philadelphia Electric case, expenses on the public side were:

Morris L. Cooke for out-of-pocket expenses principally incurred in making preliminary inventory and appraisal to establish prima facie case as required by Commission	$ 8,141.74
Engineers	10,044.57
Lawyers	21,000.00
Other Experts	1,330.00
Utilities Bureau	1,140.00
Total	$41,656.36

(b) Approximate information from representative of public interest.

(c) Hyde Park Gas case expenses on private side were:

Attorneys' fees	$ 7,600.00
Engineers and expert witnesses	2,865.17
Traveling and incidental expenses	2,350.18
Miscellaneous	1,093.75
Total	$13,909.10

(d) The Wilkes-Barre Railway case expenses on private side were:

Attorneys' fees	$ 2,200.00
Engineers' fees	13,291.88
Accountants' fees	1,873.89
Expert witness fees	2,310.18
Traveling and incidental expenses	3,782.52
Services of regular employees	1,654.25
Miscellaneous	353.18
Total	$25,465.90

(e) Up to January 1, 1923.

(f) The public side expenditures in Metropolitan Edison case were divided:

Accounting	$17,669.92
Engineering assistance	14,504.16
Attorneys' fees	25,000.00
Total	$57,174.08

(g) $15,704.19 expended by City of Erie since January 1, 1920; $5,000 for printing record for appeal; and an unknown amount, estimated here at about $5,000, representing expenses of Erie prior to January 1, 1920, and expenses of Borough of Warren and Corry.

(h) This total of $14,134.84 was made up of the following items:

Attorneys' fees	$ 8,500.00
Engineers' fees	5,301.77
Traveling and incidentals	333.07

(i) This total of $67,919.52 was made up as follows:

Attorneys' fees	$36,722.09
Engineers' fees	9,601.80
Accountants' fees	4,000.00
Expert witness' fees	2,334.00
Bond premium	5,916.67
Court proceedings	3,975.30
Printing book	4,433.61
Traveling and incidentals	354.25
Misc.	583.80

The amounts spent by the companies as set down in this table in most cases does not include allowance for the time spent by engineers, attorneys and clerks, on the regular payroll of the utility, a considerable item in many instances. In the Reading Transit and Light case, for example, the Barstow Management Association, which operated this property, had its accountants, clerks, and other employees working for weeks assisting in the preparation of the inventory and appraisal, so that while only $65,000 has been set down here as the cost of the case to the company, the extra time of other employees represents a sum estimated by the attorney for the public interest at over $35,000 additional. The amounts have been put low intentionally, in order to be conservative. The reason why the proportion is frequently much lower than this is because of the difficulties and obstacles in the way of raising funds for the public side.

It appears that the ratio of expenditures of private litigants to public in the cases in the table have been about four to one.[4] Especially where the contest is initiated and carried on by the voluntary contributions of a group of citizens, it is hard to keep sufficient funds coming in for a long enough time to see the case through. "We had great difficulty in raising enough money to carry our case forward," says one of the leading representatives of the public interest in the Philadelphia Suburban Gas case, "which was made still harder when one of the representatives of the company undertook to actually get citizens to withhold contributions. Then the voluminous testimony and numerous exhibits in the three inventories and appraisements ordered by the Commission made an addition which rendered it absolutely impossible for us to finance an

[4] L. H. Kinnard says: "This does not mean that the complainant or the general public suffers thereby. On the contrary, the complainant and the public directly and substantially benefit from such expenditures of the utility, as thereby are produced for analysis and debate the very facts which are essential to a solution of the problem involved, and which facts are largely in possession of the utility and could hardly be produced from any other source."

appeal. To print the record would have cost somewhere between $12,000 and $15,000."

In Edward T. Field *v.* Philadelphia Rapid Transit Company, the attorney for the public interest says: "The case was not appealed because sufficient funds for the necessary printing of the large amount of testimony, and the fee for counsel, were not available."

In the Philadelphia Electric case, only the financial support of a number of public spirited citizens made possible the successful outcome of the case which saved the city and private consumers over a million dollars the first year. The moving spirit in this case advanced out of his own pocket more than $20,000 to pay current expenses, which was finally repaid to him by city councils when the case was won.

Even where the matter is undertaken by the city government or by a chamber of commerce, and public or association funds are available, it is frequently hard to keep the official representatives of the public awake to the magnitude of the issues involved. The inertia of governmental bodies, as of all large organizations, holds matters back to say nothing of the changes of city administration already mentioned.

In the Wilkes-Barre Railway case, the boroughs represented were so slow in paying their firm of engineers that the boroughs were finally threatened with suit for the balance involved, $2,790.

In the Luzerne County Gas and Electric case, attorneys state that a succession of difficulties blocked the raising of funds for the public side. The boroughs had an arrangement by which each was to contribute to the expenses of the case in proportion to the assessed valuation of each. The local tax-payers association was induced to notify the boroughs that they had no right to expend public money for the reduction of the personal bills of their citizens; and this blocked proceedings for some time. Certain citizens, including one of the

principal attorneys, advanced the money needed to carry the case forward, and finally the boroughs were convinced that this contention was not sound, and appropriated the necessary funds to go on.

In the Reading Transit and Light case, it was hard to get the city to appropriate sufficient funds to employ the needed expert engineers.

Savings in Reduced Rates.—The costs of utility cases to the city or other body representing the public interest have proved in many instances to be but a small fraction of what the public has saved in lower rates or improved service. In the Philadelphia Electric case, the reduction in public lighting bills alone amounted to $150,000 a year with the rate case covering private as well as public rates costing the city a little over $40,000. As the public lighting rates had been made retroactive depending on the outcome of the case, nearly $200,000 was returned by the company to the city treasury. The cases against the Bell Telephone Company of Pennsylvania resulted in a reduction of a million dollars spread over the entire state. "In the Scranton Railway case, the expenditure of $17,000 by the city resulted in a saving of the difference between 8 cents, the fare contended for by the company, and the rate of 4 tickets for a quarter (actual cost revenues, 6.4 cents per passenger) or 1 6/10 cents per passenger. About 28,000,000 passengers were carried each year for the two years between April, 1919 and April, 1921, or 56,000,000 passengers; the aggregate saving at 1 6/10 cents for passenger, was, therefore, $896,000 for the two years. This does not take into account the further saving accomplished after April, 1921, when the company asked for a 10 cent fare, but was finally granted an 8 cent fare (4 tickets for 30 cents) since that date." The reduction in the rates of the commercial light and power consumers who brought the complaint in the Metropolitan

Edison case is stated by the attorney to have amounted to about $350,000. In many other cases no saving whatever was accomplished, the Commission permitting the existing rates to be continued.

The following table summarizes the few cases for which data are available.

Cases	Expenditures by Representatives of Public Interest	Savings Estimated to Public Annually
Philadelphia Electric Case	$41,656	$1,050,000
Scranton Railway Co	17,000	896,000
City of Pittsburgh *v.* Bell Telephone Co.	75,000[a]	300,000[b]
City of Reading, *et al.*, *v.* Metropolitan Edison Co	57,000	350,000
City of Pittsburgh *v.* Duquesne Light Co.	.....	640,000

(a) In the three telephone cases which followed one another. To this should be added sums spent by Philadelphia citizens.

(b) This was the reduction assigned to Pittsburgh of a reduction of $1,000,000 throughout the state, of which $450,000 applied to Philadelphia; $300,000 to Pittsburgh, and $250,000 to toll rates. See report and order of the Commission, April 4, 1917 (No. 274).

Access to Books and Records of Company.—Access to the books and records of the company for the purpose of determining the investment and costs of equipment and operations has not been given in some cases; in others partial information only has been supplied. In the Philadelphia Electric case access to books and records was refused. In the Pennsylvania Gas case opportunity to examine the earlier records of the company is said to have been afforded; the Public Service Commission had its own accountant take off and supply to the public side the later figures needed. In the Philadelphia Suburban Gas case, difficulty in getting access to the records of the company was overcome finally by securing an order from the Commission requiring the supplying of such records. In the Hyde Park Gas case, the company declined to furnish access to certain records which it claimed related more to water rather than to gas accounts, and before this could be cleared up to the

satisfaction of the city, it was necessary to get an order from the Commission directing it to supply the records in question for examination by the city's expert.

A fifth factor in the slowness of utility cases is the failure of the Commission to insist that cases move forward with alacrity. While many delays are inevitable, representatives of the public interest state that unduly prolonged hearings, continuances too far apart, and a mistaken theory of the function of the Commission, i. e., that it is a judicial body rather than actively administrative in character, have increased the time and the cost of trying cases before the Commission.

The willingness of some companies to promote delay might not have much effect if the Commission insisted on moving cases vigorously forward. Failure to do so is attributed as a reason for the length of time required. "Why should there be hearings only from 10:30 to 12:30 each day?" said the counsel for the city in the Philadelphia Rapid Transit case. "There is no reason why we should not meet at 9:30 and run right through till 5 o'clock, with a period out for lunch. This would double the amount of ground we could cover in a day. This case has already taken two and a half years, and at the present rate is not yet one-third through. It is a big case, but the slowness with which it is proceeding is due to other causes."

But the greatest possibility for saving in time and expense lies, according to attorneys, in a different conception by the Commission of its duties, and how they should be performed. "Instead of coming in to decide upon the correctness of the inventory and appraisals made by the company and the city, why should not the Commission itself make the inventory and price it, subject to such check or objection as either side might desire to bring forward? An inventory of physical property is an engineering job, and there should not be much difference in opinion as to such tangible values—"not more than 10 per cent at most. In the Pittsburgh Railways case, the special counsel

for the city states, "If the Commission itself had done the work (of valuation) it would have saved half the time and three-fourths of the expense to city and company." The city solicitor of Erie is equally definite: "At least $10,000 of the $15,000 which the city spent (exclusive of printing) in the Pennsylvania Gas case, could have been saved, if the Commission itself had undertaken the original inventory and appraisal. Then all that would have remained for the city would have been to argue appraisal items such as 'value of gas lands,' 'going concern value,' etc." "This work if undertaken by the Commission upon the theory that it is the administrative body of the state charged with the duty of developing the facts itself," said another, "would undoubtedly result in time in shorter and quicker methods of doing the work. There would still remain the need of experts and attorneys for the city, but the time which they would have to give would be greatly reduced. Lower costs would certainly tend to make more equal the presenting of the two sides by public and company."

A somewhat different view is that expressed by the assistant city solicitor in the Scranton Railway case. "We made a great mistake in not having the city represented in the inventory and valuation conference of engineers, though we had an expert assisting both before and after the conference. The Public Service Commission was supposed to make the inventory and appraisal, representing the city's interest, but the result to the city was not satisfactory. The public should be represented in all cases, and particularly in valuation conferences, by its own experts and engineers."

It seems clear that upon the representatives of the public interest must devolve the duty of checking the figures of company or commission, and of presenting the public point of view in utility valuation matters, even though the Commission, by making the inventory of physical property itself, reduces the time and expense required.

Conclusions.—The disadvantages under which representatives of the public side, therefore, state they have labored may be summarized as follows:

1. Unfamiliarity with the conduct of utility cases, with a consequent slowness in moving cases forward in their early stages.
2. Changes in the personnel of the public officials responsible for conducting them, resulting in more or less confusion or delay.
3. Difficulty in raising funds on the public side, resulting in delay in hiring experts and inability to push cases vigorously.
4. Difficulty in getting the necessary expert assistance, due partly to the small number of "socially-minded" experts available for the public side, and partly to lack of knowledge of where to find them.
5. Difficulty in securing access to company records, with consequent delay or inability to present fully pertinent facts. The obstructive tactics of some companies in delaying proceedings intentionally, or interfering with contributions to funds on the public side, has also contributed to the unduly long time required to try such cases.
6. The failure of the Commission to more actively expedite cases has increased the expense and delay. The length of time taken in utility cases is the result of all these factors, which have operated as handicaps to the public side.

Some of these disadvantages can be removed or offset by measures designed to that end. The first two mentioned handicaps are unavoidable; there is no short way to remedy inexperience of public officials, or to prevent changes of administration in cities. There will doubtless be for many years more experts and larger funds available on the private side, and both available more promptly. But experts and funds can be secured

by active and persistent representatives of the public interest. The time for which they are required can be reduced by commissions taking a more active part in the administration of the law, insisting that cases move forward with all reasonable dispatch; that proceedings be not delayed by the introduction of minor or irrelevant matters; that sessions be held more continuously; and that methods of arriving at approximate figures, agreed upon in joint conference, or otherwise, be employed in place of minute inventories, the preparation of which takes months of detailed labor. One wonders just why it is that only when rate cases are started that the lack of an inventory is discovered. Many other industrial enterprises maintain plant inventories currently.

Such a broad and comprehensive method of operation might require a larger staff for the commissions, and more adequate funds, but the greater economy to the public, in money and time, can scarcely be doubted.

These constructive suggestions, arising out of the experience of counsel for the public in actual cases and made by them, should reduce the time and the cost of both sides in utility cases. This is very desirable, for in the long run, the average citizen, through the rates which he is charged, pays all the bills, both the expenses incurred in the public behalf and those paid out by the company on its side.

CHAPTER XIII

REGULATION OF MOTOR CONVEYANCES

By Benj. H. Williams
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Problems of Regulation.—The last few years have seen a remarkable increase in the use of the motor vehicle as a common carrier. The strain placed upon rail transportation during the war caused the diversion of traffic to the motor bus and truck, and the rapid progress of road-paving has supplied a final necessary element in the permanent establishment of routes. The result has been the multiplication of lines for the carrying of freight and passengers on fixed schedules with established rates and fares.

All of this has brought a number of perplexing problems of regulation. Chief among them is the question: Shall the motor vehicle be allowed to compete directly and freely with electric and steam railways, with all of the hazard to the transit system which that course threatens to entail, or shall the new carrier be held in check and allowed to operate only over unoccupied territory, thus running the risk of unduly restricting a method of transportation which has its unquestioned merits and which sooner or later must be frankly recognized as an important part of the transportation scheme? Other problems in this field are rapidly coming to the front. Altogether they have brought a new task to the state regulatory commission—a task which, especially in its earlier stages, has been said on good authority to be equal in time and trouble to all of the other work of utility regulation combined.

Jurisdiction of Commissions.—The first legal conflict over the right of the state to control the motor vehicle when operated as a common carrier was settled in favor of the state.

> The right of a citizen to travel upon the highways and transport his property thereon, in the ordinary course of life and business, differs radically and obviously from that of one who makes the highway his place of business and uses it for private gain, in the running of the stage coach or omnibus . . . The right may be wholly denied or it may be permitted to some and denied to others because of its extraordinary character.—Ex Parte Dickey, 76 W. Va. 576; 85 S. E. 781.

Numerous decisions accord with this in allowing a wide latitude to the legislature in regulating the motor carrier. Approximately one-half of the states have passed some kind of law to deal with this traffic. These laws naturally differ in the amount of power bestowed upon the state commission. In some states all motor vehicles used as common carriers come under the control of the commission, while in others the jurisdiction of this body has been confined to passenger vehicles, thus eliminating freight trucks, or to vehicles operating between fixed termini, thus excluding "for hire" cars, such as taxicabs. Other laws deprive the commission of jurisdiction over lines that operate solely within the municipality, leaving their problems to be dealt with by the local bodies. In some states all motor vehicles used as common carriers come under the control of the commission, as in Pennsylvania, where the commission has obtained wide authority from the statutes vesting control over common carriers in general.

Certificates of Public Convenience and Necessity.—The first administrative problem connected with the regulation of motor vehicles is to determine in what cases a certificate of public convenience and necessity shall be issued. In other utilities the requirement of a large amount of capital helps to

discourage any attempts to establish operations where the service is not needed. Motor vehicle lines, however, require comparatively little capital, and if there were no restraint placed upon entry into the business, a condition of cut-throat competition would naturally prevail, with disastrous results to consistent service. The legal method of selection almost universally adopted is the requirement that a certificate of convenience and necessity shall be granted by the state commission before operations may begin.

Restriction of Competition With Rail Carriers.—The most serious question in this connection is, as already indicated, whether the state commission will be willing to grant a certificate to a motor vehicle company to run in a territory that is already served by an electric or steam railway. Here the commission is moved, on the one hand, by a desire to improve the service to the community, and on the other, restrained by the apprehension that the motor vehicle may invade the field during the seasonable months, secure the cream of the business, and retire during the winter, leaving the railway company badly crippled by the inroads into its earnings. On the whole, the state commissions have adopted a conservative and cautious attitude in regard to this new service. There is a long line of rulings in which certificates have been denied to motor vehicle operators on the grounds that they cannot be allowed to compete with the established rail routes.

Rhode Island Case.—An interesting and important case recently decided by the Rhode Island Public Utilities Commission follows these precedents. The Rhode Island commission in 1922 was compelled to give attention to the matter of automobile and rail competition when the regulatory statute of that year went into effect. It was found that there had been a large number of motor bus companies within the state which

had competed directly with electric lines. Under the new law none of these could continue to operate without securing certificates of convenience and necessity. The commission considered 391 applications for certificates in one decision, and in a far-reaching order made the ruling that it would not permit of direct competition with electric lines. The commission found that the jitney lines had carried a considerable part of the passenger traffic of the state and estimated that if this traffic had gone to the electric lines it would have produced an additional revenue to those companies of 17.40 per cent of their total passenger receipts. It said:

> The commission is clearly of the opinion that the street railway company should have the benefit of this additional revenue in order that the traveling public may have the benefit of improved service or a lower rate of fare, or both, which the receipt of such additional revenue would appear to make possible in the near future. . . . .
>
> Upon consideration of all the evidence we are of the opinion that the operation of a competing jitney and street railway service over the same route will not subserve the present or ultimate welfare of those requiring urban or suburban transportation, where the service rendered by the street railway is reasonably adequate to the reasonable demands of the public making use of such service.

Pennsylvania Policy.—In Pennsylvania the policy of the Commission has been in accord with the position just described. In 1916 the commission decided that the statutes of Pennsylvania with regard to common carriers gave it ample power to regulate motor vehicles when employed in that capacity, and that accordingly it could require the issuance of a certificate of public convenience and necessity before such companies could operate. In the case of Allegheny Street Railway *v.* Peter Greco the commission refused a certificate to an applicant whose operations had cut into the earnings of a street railway. The continuance of this motor vehicle line was not

necessary or proper for the public welfare. Later in an important decision the commission outlined its policy as follows:

> No one will contend that the proposed truck transportation can take the place of railway service, or that it would meet the demands for transportation of more than a very small fraction of the people at present using the traction system. . . .
>
> . The question of permitting jitney and truck transportation in competition with rail service presents both a difficult and serious problem for solution. This commission has been granting these applications when the public convenience and accommodation required the service, and refusing them when the facts indicated that their operation would seriously affect either the revenues or the efficient and adequate service of the operating companies. It may be that the final solution of the problem will resolve itself into a question of the survival of the fittest, but before the commission would be justified in destroying the invested capital of a public service company by substituting another method of transportation, there will have to be more convincing evidence than now adducible that the great body of the people would be better served and their convenience and accommodation thereby promoted, or in other words, that the service, accommodation and convenience of the many will not be sacrificed for the benefit and advantage of the few.

Nor would the commission consider the inadequacy of railway service as grounds for allowing motor bus competition, stating that upon proper complaint the commission has the power to compel the trolley company to provide itself with sufficient facilities for the accommodation and convenience of the public.

Competition With Rail Carriers Permitted.—In some few states a contrary policy, allowing freedom of motor vehicle competition with railways, has been adopted. The New Jersey Board of Utility Commissioners has discovered in the law of

that state a legislative intent to maintain a regime of competition. The legislature excluded from the control of the board all jitneys operating under municipal consent prior to March 15, 1921. The express exception of motor busses operating prior to that date, the board decided, shows that the legislature did not intend to curtail jitney service as it existed on that date. Accordingly the board has adopted a liberal policy of maintaining jitney facilities as they existed on March 15, 1921, unless it can be affirmatively shown that conditions have so changed as to necessitate a curtailment. Under this policy there remains two competing systems of transportation in many cities of that state.

The Public Service Commission of Oregon has also adopted a course of permitting the duplication of service on the theory that the public should have the opportunity to profit by competitive operation. The Railroad Commission of Wisconsin made an effort to eliminate duplicating lines, but the supreme court of that state decided that the commission had exceeded its powers, and accordingly the bus system grew up there under conditions of free competition. A bill to remedy this defect in the power of the commission was passed in 1922, but was vetoed by the governor on the ground that competition was necessary in this field. Competition also exists, as a matter of course, in those states which have failed to pass legislation to regulate this traffic.

Competition With Rail Carriers Permitted If Additional Service Is Furnished.—Some commission rulings have permitted competition between motor carriers and rail lines where the motor carrier proposes to render an additional service to the public. Thus where a motor truck service would take merchandise from the door of the consignor and deliver it to the door of the consignee a reasonable necessity and convenience to the public was found to exist, although the same route was

served by a railroad, the disadvantage of the rail service being that it necessitated handling and cartage at each end of the route. Where the proposed motor bus route would run nearer to the homes of many of the patrons than the railroad, a certificate was granted on the grounds of greater convenience. The commission said:

> Undoubtedly the kind of service offered by the proposed new auto bus line, passing as it does the doors of its patrons in many cases, and stopping wherever requested, serves a public convenience, which the more remote steam road with its infrequent stops at stations at a distance more or less removed from the main line of travel does not supply.

Where the route of the street car tracks was circuitous and for that reason could not be patronized by a large number of people, a certificate was issued to a company to operate motor busses over a more direct line. Again in a case where a motor bus line competed with an electric line, but diverged somewhat from it and 78 per cent of the motor bus patrons boarded or alighted in an area where the lines were more than nine hundred feet apart, the New York Commission ruled that the automobile route supplied a want of the public not already met and granted a certificate to the motor bus operator to continue operations. The rendering of service at lower rates and at hours more convenient to the shippers of perishable products was taken in another case to be sufficient reason for allowing a truck company to compete with a railroad and an express company. In Nevada an "on call" service was allowed in competition with a railroad and an established motor vehicle route on the grounds that it furnished a special and emergency service.

The California Railroad Commission has admitted evidence of the inadequacy of rail service in passing upon applications for certificates by motor bus and truck operators. Thus in one case where the trains were chronically late, the equipment

antiquated and the seating arrangements uncomfortable, and in another where there were delays in shipments and in securing deliveries at the terminals, certificates were granted to competing motor carriers.

Local opinion should be given some weight in determining whether to grant certificates in these cases, according to the suggestion of the Committee on Motor Vehicle Transportation of the National Association of Railway and Utilities Commissioners, which delivered its report at a meeting of the Association in November, 1922. This attitude has been adopted in a few instances in commission rulings. The fact that the people and officers of a city had declared themselves in favor of a new bus line was taken into consideration by the New York commission in awarding a certificate of convenience and necessity, although the line was in competition with an established street railway. In a California case evidence was taken into consideration that the residents and resort proprietors along the route for which the applicants petitioned for a certificate were desirous of securing the proposed service, and the application was granted although the new line was in competition with a railroad.

Competition Between Motor Carriers.—There have been a variety of rulings upon the question as to whether competition between motor carriers over the same route would be allowed. The tendency is towards exclusive certificates. The New York Commission has announced as its policy that competition between bus lines should be prohibited the same as between other carriers. The Arizona Corporation Commission gave its opinion that persons operating automobile stage routes on regular daily schedules for the transportation of passengers and property for which there is a public demand should be protected from competition by the irregular operations of irresponsible persons. According to a recently adopted

ruling of the Nevada Commission, an existing automobile stage operator should be required to furnish additional service if practical in order to avoid duplication by the admission of a new operator.

The Pennsylvania Commission does not grant certificates to competing companies where adequate service is rendered by the established line; but it will approve new applications where the existing certificate holders are not adequately serving the public. When the operator occupying the territory will be unable to provide for a large increase in traffic, additional motor vehicle freight facilities have been admitted in Arizona; and likewise in Illinois where it appeared that the public would be greatly convenienced by the additional service.

Revocation of Certificates of Convenience and Necessity. —A number of the commissions have set forth causes for which the operator's certificate of necessity and convenience may be revoked. A suspension of service is given as a cause for revocation in California, Illinois, Maine and Washington. But failure to operate on account of deep snow which rendered it impossible to maintain the schedule was held not to be a ground for forfeiture in Utah. Failure to comply with the rules and regulations of the commission is mentioned as cause under the rules in Illinois, New Hampshire, Maine, Maryland, Pennsylvania, Utah and Washington. Revocation is provided for in Maine, New Hampshire and Washington when it appears to be no longer necessary for the public good that the certificate continue in effect. Under the rules of the Arizona Corporation Commission, failure to stop at a railroad crossing when required has been stated to be good cause of revocation of certificates. The conviction of an operator of a motor vehicle for the violation of the prohibition laws of the United States and the State of Arizona has also been held to work the forfeiture of the certificate.

Taxation of Motor Carriers.—There can be no question but that the automobile has made substantial inroads into the business of the electric lines. A number of investigations by public service commissions have demonstrated that the motor vehicle is responsible for a large proportion of the financial troubles of the interurban railways.

There has been a falling off in the number of passengers carried of approximately 23 per cent during the years 1920-22. This decline is particularly noticeable in view of the fact that during the same period there was a rapid expansion in other lines of the electric industry. It must be remembered that this loss of business is only partially due to the motor bus. The private automobile, along with other factors, is likewise responsible.

In order to place the motor carrier on a plane of equal competition with the electric line there has come a demand from some quarters that the former shall be taxed in an amount which will deprive it of any public subsidy which it may enjoy through the free use of the highways. This taxation, it is claimed, will equalize conditions of competition between these two types of carrier, and will insure that the type which is best able to serve the public will survive. There seems to be much truth in this suggestion. The question of taxation, however, is distinct from the problem of regulation. Furthermore, it presents a number of difficult problems which have thus far not been satisfactorily solved.

Regulation of Rates.—Almost all of the states that have taken legislative action for the control of motor carriers have conferred the power of rate regulations upon the state commission. There has been, however, very little use of this power and the problem as to what shall constitute a basis for a fair rate has yet to be solved. The Nebraska State Railway Commission after considerable investigation established an elaborate sched-

ule of freight rates for highway trucking to apply to the eastern portion of the state. These rates became effective on July 1, 1919, and all operators engaged in carrying freight for hire upon the highways in that part of the state were ordered to comply with the schedule. With some amendments these rates were in effect until April 20, 1921, when they were rescinded. The commission stated in its order of rescission that only a small percentage of those engaged in the business were observing the orders of the commission regarding the classification and rates, and that practically none of them, including those strongly favorable to regulation, were carrying out the commission's instructions regarding cost accounting. The regulations were admittedly in advance of the times and the commission chose to allow the matter to revert to a state of free competition so far as rates were concerned.

The Pennsylvania Public Service Commission took cognizance of the matter of rates when a motor bus operator filed a tariff raising his usual fares. Complaint was made to the commission, which found that under the old rates the operator had been making a profit of fifty per cent, even after allowing as much for depreciation as fifty per cent per annum. The commission made the following statement concerning its policy on this matter:

> It is not to be presumed that the commission will, or should attempt, to regulate small auto bus or other vehicular concerns under the same standards of valuation and rates of return that apply to utilities in which capital in large amount is invested by incorporated companies. Elements such as the employment of individual time and talent in the development of such businesses, and which deserve reward entirely apart from any measure of fixed return upon the meagre amount of capital invested, must be considered if these small and worthy enterprises are to be encouraged in giving the best possible service. But it must also be considered, as in the respondent's case, that such utilities are given free, ex-

> cepting a few inconsequential local assessments or taxes, exclusive rights of way over streets and highways maintained at public expense, and all the benefits of police and other protection which the state and the local communities furnish.

Accordingly, the complaint was sustained and the permission to raise the fare was refused.

The California Railroad Commission considered the matter of a fair return in denying an application for an increase in rates. In this case also a 50 per cent per annum depreciation charge was listed by the applicant. In commenting on this depreciation the commission considered it an exceptionally high rate, indicating that the particular type of car used was not economically adapted to the stage business. The commission refused to consider sums which the applicant has listed as operating expense and which represented amounts paid for the lines purchased, presumably covering franchise value, goodwill, going concern value or other intangibles. It said: "The commission will not allow in a rate basis of any carrier any amount for so-called operating right other than the expense actually paid for the securing of a certificate of public convenience and necessity." After an examination of the company's records it was found that the net returns amounted to 29.15 per cent on the investment. This was declared in excess of a reasonable return and an investigation was ordered to determine if the rates should be further reduced. In a Utah case the operators were authorized to collect a fare that would yield an annual return of about 6 per cent on the valuation of the property devoted to the public service. In this instance the depreciation was estimated at a rate of 20 per cent per annum.

Safety Regulations.—In the operation of motor vehicles safety has occupied the attention of practically all of the commissions. Such regulations cover the stopping of passenger vehicles at railway crossings, qualifications of drivers, limita-

tions of the hours during which a driver may be employed, rules against overloading, safety equipment, such as speedometers and fire extinguishers, indemnity insurance, etc.

Notwithstanding the attention which has been showered on motor vehicle service, both passenger and freight, ultimate policies in this field are by no means determined.

CHAPTER XIV

LABOR POLICIES AND PUBLIC UTILITIES

By Henry T. Hunt

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Settlement By Combat.—The usages controlling the relations between our utilities and their employees and the states of mind back of them must be reckoned with in any study of regulation. These usages substantially affect, of course, the continuity and cost of service. The conditions under which men work do much to make their lives gay or drab, and accordingly influence their initiative, courage and mental alertness—factors of power in the industrial effectiveness of any state. Hence, it is necessary in a work of this kind to examine, cursorily at least, conditions of employment and wages, machinery for the adjustment of controversies and for promotion of co-operation, with a view to finding a possible avenue toward sound public policy in this field.

Trial by combat as a means of deciding what these usages should be is becoming more and more irksome to the public. The public is often well battered in the mêlée and has a strong material motive to modernize this method into the rule of reason. It feels also an obligation to provide some approximation to economic justice for its servants. The courts would seem to be the proper tribunals to decide these issues, but there is a deep-seated conviction in the minds of workmen and of many jurists and statesmen that courts cannot with safety to the state or with progress be given jurisdiction to decide for what wages men should be required to sell their labor or to decide what wages employers should be required to pay. It

is strongly urged that such questions should be left to free negotiations between the parties, made as equal in power as may be by organization. To give the courts power to decide and enforce decision thereon savors of servitude and confiscation. Yet, upon the failure of any given industry to set up the processes necessary to peace and order and justice as between employer and employee there are strong indications that the public may insist, for its own protection, that some sort of public tribunal be established, at least to suggest bases of settlement of industrial disagreements interrupting or threatening utility operation.

Statement of Sound Labor Policy.—Competent authority has recently stated some of the principles underlying sound policy with regard to the employees of public utilities. The Federal Electric Railways Commission was appointed by President Wilson in 1919 to study and report on all phases of the traction situation. It was composed of representatives of practically all points of view, to wit: the National Association of Utility Commissions; the Departments of Commerce and Labor, and the Treasury; Investment Bankers' Association, American Electric Railways Association, American Citizens' League for Mayors, and the Amalgamated Association of Street Railway Employees. This Commission held that:

> Co-operation of labor is essential to the highest prosperity and usefulness of the industry.
>
> The employees engaged in this occupation should have a living wage and humane hours of labor and working conditions.
>
> They should have the right to deal collectively with their employers through committees or representatives of their selection.
>
> All labor disputes should be settled voluntarily or through arbitration, and the award of such a board should be final and binding upon all the parties.

Number Employed By Pennsylvania Utilities.—The following table shows the number of employees together with the wages and salaries paid by the utilities in Pennsylvania (population 7,000,000) in 1921. It affords some idea of the importance of the labor factor in utility situations.

	Wage Earners Including Salaried Employees	Wages and Salaries Paid
Steam railroads	209,453	$347,622,871
Electric railroads	29,461	47,427,589
Telephone companies	27,136	30,491,146
Electric light, heat, and power	14,602	21,322,429
Steam heat	233	388,908
Natural gas	6,632	9,086,586
Manufactured gas	7,000	9,065,029
Water, municipalities, and private publ. service	6,684	8,000,712
Total	301,211	$474,165,279

Co-operative Plan of Philadelphia Rapid Transit Company.—Pennsylvania affords examples of employer-employee usages and relations conducted through company unions, employee unions and through individual arrangements. The most conspicuous example, perhaps, of the first class is the situation in the Philadelphia Rapid Transit Company. The "Co-operative Plan" of this company provides for the election each year by employees and appointment by the management of an equal number of branch, department and general committeemen and for a board of arbitration to which disagreements shall be referred if the representatives cannot agree. The parties agree to obey the arbitrators' decisions. Candidates for election (nominated by petition) must have been employees for two years and be regularly assigned to duty. Branch and departmental committeemen are elected by secret ballot. Each department committee elects two of its own members to member-

ship in general committees made up of equal numbers of representatives of the company and of the employees. Each general committee has its chairman and the representatives may meet separately or jointly. The function of the general committee is stated to be:

> To devise ways and means for furthering the efforts of the various department committees for the greatest possible good, to promote harmony and good fellowship among all employees of the company, to formulate plans for submission to the various department committees, and to render every assistance within their power toward public advancement of the interest of the employees and the betterment of the service.

The committee has power also to modify or reverse any decision of the department committees and to change any portion of the co-operative plan. If it can arrive at a decision, it is final. If a decision cannot be arrived at, reference of the controversy to a board of arbitration is automatic. The board consists of an arbitrator chosen by each party and a third by them. If unable to agree on a third, the Provost of the University of Pennsylvania, Chairman of the Public Service Commission and the President of the Philadelphia Chamber of Commerce are to serve or each to appoint a representative. Three of the five are required for decision.

Co-operative Welfare Association.—A co-operative welfare association was organized in 1911. Prior to 1918, the company paid to it $90,000 per annum and the members each $1 per month. Members are entitled to $1,000 life insurance and a sick benefit of $1.50 per day, commencing on the 8th day, not to exceed 100 days in any consecutive 12 months. Forty-five dollars per month is paid to employees who reach 65 after being continuously in the service for 25 years. Since 1918 the company's contribution has been $120,000 per annum.

In 1921 it also agreed to pay "employees" a "dividend" of 10 per cent of each man's pay for the year if operating expenses were reduced to $1,500,000. This was accomplished and the dividend paid. An arrangement has now been entered into whereby employees receive 10 per cent out of the surplus earnings next after the 6 per cent dividend to stockholders. Employees now hold 100,000 shares of stock.

Agreement as to Wages.—From 1911 to 1918 the company agreed to pay 22 cents out of each dollar received in fares to a fund to be used for wage payments to conductors and motormen. In 1918 it agreed to pay the average wage rate of the street railway employees in Chicago, Cleveland, Detroit and Buffalo.

This management states that when wages were increased in these cities, the Philadelphia employees agreed to forego their increase in order that a 5-cent fare might be maintained. The management insists that it places no pressure upon any employee to join the welfare association and that all employees are free to belong to any labor organization. Six per cent dividends are paid to the stockholders but the fare has been raised to 7 cents or 4 tickets for a quarter.

The financial and social success of the Philadelphia Rapid Transit Plan is usually attributed to the personality of Thomas E. Mitten, President of the Company from 1911 to 1922, and now Chairman of the Board. Mr. Mitten combines the technique of management with knowledge of human nature and of the incentives which appeal to men.

In one respect at least the P. R. T. employees reap where they have not sown. The provisions whereby their wage rates are the average of those of the cities named give them the benefit of the battles and sacrifices of the Amalgamated Association of Street Railway Employees.

An Organized Labor Situation—Pittsburgh Street Railway.—The Pittsburgh Street Railway Company has until recently been operated by receivers, appointed by the Federal Court. Its labor relations with motormen and conductors are expressed in an agreement dated May 2, 1922, between the receivers and division No. 85 of the Amalgamated Association of Street Railway Employees of America. By this agreement the employer agrees to meet and treat with accredited representatives of this division of the association. It provides:

> Both parties desire to establish cordial relations with each other and desire to co-operate in a solution of the problem concerning receivers and trainmen.

Arbitration is provided to settle disputes as to the interpretation of an agreement. The term is one year expiring May 1. The practice is to negotiate agreements prior to May 1, for the ensuing year.

In 1919 the negotiations failed and two strikes ensued, May 15 to 19, and August 12 to 26. The first occurred through inability to agree on the wage scale, and the second because the decision of the War Labor Board, to which the controversy was referred, did not satisfy the employees, and the War Labor Board having adjourned, there was no opportunity for a rehearing.

After being out 14 days, the men returned to work at the wage rates decided by the Board. When the strike had been in effect 7 days, the company imported strike breakers and attempted to operate cars. There was considerable disorder and the attempt was abandoned. In that year the city of Pittsburgh was without street car service for fourteen days.

On April 1, 1920, the receivers agreed to pay 60 cents per hour. In June of that year an agreement was made to pay 70 cents per hour, and the fare was increased from 7½ to 8⅓.

In July, 1921, the wage rate was cut to 60 cents. In May, 1923, a rate of 67 cents was agreed to.

Individual Labor Relationship.—Outside of the steam railroad field, the great majority of utilities operate altogether through individual relationship with their employees; collective bargaining in any of its varied aspects is unknown. In some cases this is perhaps an unstudied inheritance from the past; in others it represents opposition to unionism or anything that might conceivably develop into unionism. In the first group might be mentioned the United Gas Improvement Company, which operates, under lease, the Philadelphia Gas Works and utilities in other Pennsylvania cities, and in many other states. It employs some 5,000 men, of whom the great majority are pick and shovel men, to dig trenches for mains and work of that nature. It has no collective agreement with any class of its employees, but pays union wages to its craftsman and current wages to others. The company's officers state that they endeavor to maintain a stabilized force, but that a great part of the work is necessarily seasonal. Machinery for the adjustment of disputes is not expressed in any memorandum, but by usage any employee having a grievance may appeal from the decision of his foreman through the grades to the President of the company.

The Bell Telephone Company, on the other hand, through its President, L. H. Kinnard, thus expresses its attitude toward "union organization."

> The question of voluntary organization lends itself very readily to presentation from the standpoint of abstract justice and rights. But from the standpoint of the community as well as from that of the managers of industrial enterprises, it is not one of individual right but merely the practical one of placing in the hands of irresponsible people who may readily be ill-advised, a tool which may be used detrimentally

> to their own interests and that of others—including the general public. It is like placing a pistol in the hands of a child with the admonition that it should only be used properly. . . . It is not at all a question of principle; it is a question of the propriety of permitting the development of machinery for conspiracy.

Further, Mr. Kinnard questions the wisdom of any connection between regulation and employer-employee relationship when he says:

> It is hardly conceivable that any radical departure from the general law governing such relationship can be applied to the public utilities as a class by themselves, for in the last analysis working conditions and wages are necessary matters of competition in the labor market—controlled by the relation between aggregate productive power of the community and its desire for consumption.

The Philadelphia Company operates several utilities in Pennsylvania in addition to the Pittsburgh Railways, including other street railways, light, power and gas companies. It maintains a committee on wages and working conditions, a personnel department and "two company unions," one made up of light and power and one of gas and oil companies. It summarizes its labor policy as follows:

1. Careful selection of employees.
2. Filling of vacancies by promotion within the organization.
3. Equitable compensation in comparable positions.
4. Substantial recognition for long and faithful service.
5. Favorable working conditions and reasonable working hours.
6. Liberal provision for self-improvement.
7. Social and recreational privileges.
8. Absolutely fair treatment at all times.

Employer-Employee Relations on Steam Railroads.—By far the largest number of all utility employees in any state

work on the steam railroads—two-thirds is the percentage for Pennsylvania. Hence the importance of Title III of the Transportation Act of 1920. Section 301 thereof makes it the duty of railroad officers and employees to exert every reasonable effort to avoid interruption to operation growing out of labor disputes. Conferences between representatives authorized by carriers and employees directly interested in the dispute are required to be held. If the dispute is not so decided, it is to be referred to the Railroad Labor Board. The status of this agency for adjusting labor disputes has been described by the United States Supreme Court as follows:

> Title III was not enacted to provide a tribunal to determine what were the legal rights and obligations of railway employers and employees or to enforce or protect them. Courts can do that. The Labor Board was created to decide how the parties ought to exercise their legal rights as to enable them to co-operate in running the railroads. It was to reach a fair compromise between the parties without regard to the legal rights upon which the parties might insist on account of the law. It is to give expression to its view of the moral obligation of each side as members of society to agree upon a basis of co-operation in the work of running the railroad in the public interest. The jurisdiction of the Board to direct the parties to do what it deems they should do is not to be limited by their constitutional or legal right to refuse to do it.

Two steam railroads operating in Pennsylvania exhibit opposite points of view as to a sound course with regard to employees. The Pennsylvania Railroad has set itself resolutely against permitting employees, other than the trainmen and enginemen, to maintain organizations free of company control. It has refused to obey Labor Board decisions finding it in the wrong, and has established company unions without dues or other resources except such as the railroad may supply.

The officers of these unions are constituted the representatives of employees.

The Baltimore and Ohio management, on the other hand, has entered into co-operation agreements with the regular shop-craft labor organizations, which place emphasis upon the increase of production and the elimination of waste, the stabilization of employment and the sharing of the avails of production rather than upon grievances and their adjustment. These agreements, tried out for a year at the Glenwood shop at Pittsburgh, have been lately extended to cover the whole Baltimore and Ohio System.

CHAPTER XV

CURRENT PUBLIC OPINION AND THE PUBLIC SERVICE COMMISSIONS

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Questions at Issue.—This chapter is designed to summarize typical opinions and typical attitudes in regard to public utilities regulation, as developed in various state situations and as reflected in newspaper editorials, memorials of civic and special interest groups, party platforms, public statutes, personal letters, speeches and private conversations. The plan of presentation includes, first, a summary of the specific situations in various states and secondly, a review of the general tendencies found in various groups.

Questions relating to the public utility regulating commission have tended to take definite form in one or more of the following propositions: Shall the Commission be abolished? Shall home rule over local utilities be granted to the cities? Shall the powers of the Commission be extended? Shall a Commission be set up? It must not be supposed that in each instance the issue presented itself in a clear-cut manner. But a classification of the states in accordance with these propositions will furnish a useful introduction to the data upon which this report is based.

The authors have not attempted any critical analysis of the merits of the various and conflicting views here recorded. Experience shows that as to government policies public opinion is not always logical and sometimes changes rapidly.

Dependable conclusions as to the future of regulation could only be based on a study of the soundness or unsoundness of the opinions presented. All such appraisements are reserved for subsequent chapters. Here we are solely interested in current opinion—influenced for or against a system by considerations of widely varying significance.

Shall the Commission Be Abolished?

California.—The Commission was attacked in connection with such cases as the Southern California Telephone Company and Pacific Electric Railway Company's cases. An investigation by a select committee of the Senate (the "Inman Committee") in 1921 produced a report completely exonerating the Commission from unfairness to the public in granting increased rates, and earnestly committed "this great law, the Public Utilities Act, to the commendation of the people. It has worked well and is working well today. Strengthen rather than weaken it." With the return of more stable conditions the agitation appears to be subsiding, although the public was in the mood to defeat referendum proposals in November which sought to give the Commission jurisdiction over municipally owned public utilities, and to give it power to grant franchises for street, interurban and suburban railways and motor vehicle transportation.

Illinois.—Governor Small of Illinois capitalized the opposition to the rate-raising tendencies of the public utilities commission by promising its abolition, and this was done by creating substantially the same body under the name of the Illinois Commerce Commission. The Secretary of the Illinois Municipal League reports that "the operation of the Illinois Commerce Act has not substantially modified the view of the cities. The terms of that act are such as to discourage the cities from undertaking local regulation." The sentiment for

home rule is well organized, especially in Chicago and Springfield, and likely to endure. The bulk of the criticism of the Illinois Commission has arisen from the complaints of urban communities demanding the right of local regulation and because of rate increases.

Indiana.—The abolition of the state commission has been a pressing issue in Indiana for three years. The Commission was installed in 1913 and consequently it had but a short time in which to win the confidence of the public before the period of inflation when rates were increased. In 1920 the Farmer-Labor Party came out squarely for the abolition of the Commission and for home rule. In 1922 the Republicans recommended that the next legislature "either abolish the Democratic Public Utilities law or amend it." It is reported that a personal appeal from the Democratic candidate for Senator, ex-Governor Ralston, who had set up the Commission, was necessary in order to forestall similar action by the Democrats. In the spring of 1922, the Mayor of Indianapolis led a band of eight or ten thousand citizens to the State House in formal protest against certain actions of the Commission, and during the summer he was active in a campaign inaugurated by several city executives against the Commission.

A general reaction in sentiment seems to have set in as the business men have rallied to the aid of the Commission. The public has been somewhat mollified by the fact that the very rates which the Indianapolis delegation had protested against were set aside by order of the federal district court as confiscatory. The Mayor of Indianapolis is said to be somewhat less active of late and the city attorneys are, many of them, inclined to rest content with the amendment of the present act to secure stronger representation of the "case of the people" through a provision for an attorney to oppose rate increases. The Governor of the state declared in an ad-

dress before the Indiana Public Utility Association, January 25, 1923, that "it would be a step backward if anything would happen to the statute authorizing a public service commission."

Missouri.—The action of the Missouri Commission in setting aside franchise rates in certain instances led to a sharp attack on the Commission which nearly succeeded in 1921. The opposition has found an aggressive leader in a former mayor of a large city who characterizes the Commission as "one of the worst curses ever perpetrated on the people of Missouri." More stable times have modified the opposition to it and reports made shortly before the close of the 1923 session of the legislature indicated that the Commission might suffer only from a severely decreased appropriation.

Shall Home Rule over Local Utilities Be Granted to the Cities?

Alabama.—Although the principle of state-wide regulation has not been called into serious question in Alabama, various municipalities, headed by the City Commission of Birmingham, are preparing to make a vigorous fight before the legislature which convened in January, 1924, to obtain rate-making power over street railway systems, electric light and gas companies, and telephone companies. The labor groups actively oppose the state-wide plan of control, but conservative opinion seems in a strong position to thwart the proposed changes.

Oklahoma.—While there has been some agitation for home rule fostered by the Oklahoma Municipal League, in response to the criticism arising from certain rate increases granted by the Commission, it does not appear at the present writing that the Commission is an important issue. In Oklahoma City the Commission has apparently attracted favorable comment because it has accomplished results which "probably would not

have been handled through any judicial proceeding in the law courts," in the opinion of a prominent newspaper editor. He cites the recent order of the Commission to instruct the railroads to construct a union station and to remove certain tracks which have greatly interfered with the proper growth of the city. At the last session of the legislature the home rule bill sponsored by the Municipal League was defeated.

New York.—The status of the regulating Commission has been more thoroughly discussed in New York than in any other State in the union, the particular point at issue being the power of the Commissions to revise upward rates fixed in franchise contracts. In 1921 the separate commissions for New York and the upstate were abolished in favor of a state-wide commission and a transit commission for New York, and this legislation was accompanied by an extensive grant of power. Unpopular decisions with reference to Rochester and other upstate cities led them to unite with New York in repudiating Governor Miller and turning to Governor Smith, whose program will be referred to later.

Wisconsin.—The home rule socialists of Milwaukee have long been the consistent opponents of commission regulation of local utilities, and during the period of inflation they were reenforced by liberals from other cities. This resulted in spectacular legislative battles over the Commission and its personnel in the sessions of 1919 and 1921. But adverse sentiment seems to be dwindling, and in the last election the Farmer-Labor Party and the followers of LaFollette were outspoken in the support of the Commission.

Shall the Powers of the Commission Be Extended?

Colorado.—In certain states the main battle lines have been drawn with reference to proposed extension of power to

the existing commissions, and Colorado is typical of this group. The Supreme Court of the State refused to recognize as constitutional the jurisdiction of the Commission over the public utilities corporations, and a constitutional amendment was promptly proposed to give the Commission such power. The City Council of Denver condemned the amendment as being "a dangerous centralization of power" and the Denver *Post* declared that the proposal was fathered by the big corporations, such as the Denver Gas and Electric Light Company, the Denver Tramway Company, the Mountain States and Telephone Company, and others, who wish to escape regulation by the people. The business associations of the city supported the amendment, but lost overwhelmingly.

Georgia.—During the war the Railroad Commission, which controlled utilities, was very reluctant to make rate advances. It is quoted as having admitted that its policy was to permit the utilities to "keep just one lap ahead of the sheriff." When utilities were thus forced into the position of persistently asking for rate increases after the war, and when the Commission granted some of them, considerable criticism of their personnel was aroused. The agitation turned toward the extension of the power of the Commission and toward provisions providing for its support from fees paid by the utility companies. The editor of the Atlanta *Constitution* believes that "the Commission deserves the fullest confidence of the State."

Michigan.—The Michigan Commission was established in 1919 and has jurisdiction over city utility regulation, except where such relations are governed by franchise. In Detroit this means that the Commission can dictate telephone tolls, but has no control over electric light and gas rates. In every session of the Legislature there are bills introduced to increase

the authority of the Commission. The Chairman of the Republican State Central Committee says that he looks for "greater power to be conferred upon the Commission." The feeling in Detroit with reference to control is reported to be "very bitter," for "Detroit would prefer to deal with its own utilities in its own way, feeling that no Commission located in Lansing can understand the relation of a utility to the public in a large community."

Washington.—In the State of Washington there appears to be a great deal of sentiment against the Department of Public Works which now exercises control over utilities, although, according to the latest reports, it seemed to be in abeyance. The labor press charges—apparently incorrectly—that "there has not been a single decision adverse to the public utilities corporations in many years." In Spokane and Seattle there is some substantial sentiment for home rule, although in the Spring of 1922 a movement to initiate such a measure failed to secure the necessary 40,000 signatures. In November, 1923, proposals for extending the powers of the Commission were defeated. The editor of one of the large papers writes that "the telephone companies of this state recently asked for a 31 per cent increase. The Commission promptly suspended the matter for three months. I strongly suspect that if the Commission should grant this increase, it would find a world of trouble on its hands, but I also believe that there is good ground for hoping that it will do no such thing."

Shall a Commission Be Set Up?

Iowa.—The State of Iowa has no public utilities regulating Commission, but persistent efforts have been made in recent years to create such a body. A portion of this demand seems to have risen as a protest against the raising of rates by the

Des Moines Gas Company and the Des Moines Street Railway Company, but the League of Iowa Municipalities opposes the move as "favorable to the utilities." The general impression prevails that the utilities favor the innovation. It is reported that the utilities of western Iowa are inclined to take the initiative in favor of regulation because they were threatened from time to time by the municipal ownership sentiment inculcated by the Kansas City *Star*. In 1921 a bill passed both houses of the legislature providing for a Commission, but it was charged that certain provisions favored the utilities, and the Governor vetoed the measure. The Chairman of the Democratic state central committee did not doubt that the present time is not propitious, though "in the end the state will pass some measure creating state commission."

Texas.—Texas has no state public utility regulating commission, and when the companies began to demand rate increases, the smaller communities were forced to spend money in repeated controversies with them. There has resulted a definite agitation for the creation of a commission to serve the cities of less than 50,000. In the 1923 legislature a bill sponsored by the Texas League of Municipalities attempted to secure a commission, but to exempt municipal utilities from its control. Chiefly for this reason, the bill made no progress and was killed in a committee of each house.

Miscellaneous Questions

Kansas.—Although there has been some discussion of the utilities commission in Kansas it has been little crystallized and exists in the communities from time to time, as they are adversely affected by a rate decision. Although the Mayor of Kansas City believes that "the Commission is generally regarded as fair to the public and the owners of the utilities"

and does not think the Commission is to be a political issue in the near future, the newly elected Democratic Governor of Kansas has evidently been impressed with the advantages of home rule, saying that he "would turn the control of the public utilities back to the cities."

Montana.—Although there is no organized movement for the abolition of the Commission, there has been much local censure for the last 4 years. One observer writes:

> In instances in which the municipality has owned its own electric light works or water works, the Commission has seen fit in several instances to advance the rates, although the earnings of these utilities were sufficient to pay the interest on their bonded indebtedness, supply the sinking fund with sufficient money to redeem their bonds within the period fixed, and also ample funds for maintenance, betterments and extensions. The only explanation as to why the Commission did this thing is a guess, but it was supposed that it was done to forestall any dissatisfaction with the higher rates in cities where a private corporation controls such utilities.

New Jersey.—The raising of rates by the Commission during the inflation period brought out a vigorous protest from the State League of Municipalities and Governor Edwards changed the personnel of the Commission. The action of the Public Service Corporation in appealing from the decision of the Commission to the federal courts aroused the antagonism of both the Commission and the public. Congressman Bacharach of the Second New Jersey District has introduced in Congress a bill designed to take away from the inferior federal courts the right to intervene in such matters.

Ohio.—Although, as one observer suggests, the state utility regulating commission may be regarded as "still on probation," there is little definitely crystallized sentiment against it. One

of the unsuccessful candidates in the primary declared for the abolition of the Commission on the ground that it was composed of Cincinnati and Cleveland bosses. The Democratic candidate for the governorship declared that unless it functioned better in the future than in the past, he would ask for either its abolition or limitation. The Toledo Chamber of Commerce has endorsed the Commission. The Mayor of Cleveland does not feel called upon to criticize it. The Mayor of Cincinnati frankly approves it. Impartial observers over the state are not inclined to question it seriously.

Oregon.—A sharp increase in telephone rates followed by a refusal to readjust them was combined with the installation of an 8-cent street car fare in Portland, to bring about in May, 1922, the recall of two members of the Commissions. It seems that the opposition has been largely directed against the personnel of the board and that "the threat of recall will probably prevent any more extortionate rate increases, at least for the present," as one editor put it.

Tennessee.—Although both parties declared against the Commission in 1920 and in 1922, at the instance of the larger cities, no action has been taken by the legislature. As a Commissioner of Memphis remarks, "the rural representatives have favored the regulation of utilities and it has been impossible to bring about a change of views with them."

Other States.—Some criticism of the Commissions of Vermont and Arizona have been made by the smaller towns on the ground of delay and expense, but the abolition of the Commission does not appear to be a pressing issue. In spite of some criticism there seems to be little hostile sentiment in Connecticut, Massachusetts, Montana, Maine, North Carolina, New

Hampshire, North Dakota and New Mexico. Kentucky has no Commission and little sentiment is reported in favor of one.

General Tendencies as a Result of War.—During the war the public utilities began to press actively for permission to charge higher rates in view of the advancing cost of labor and materials. State public utility regulating commissions were generally inclined to raise rates and the resulting increases in street car fares, gas, telephone and similar rates interfered with the habits of the public. Sellers of public utility bonds had endeavored to strengthen the impression that the business was exceptionally profitable. Increased rates were looked upon with suspicion, even though the cost of other commodities and services was rising. Repeated advances after the close of the war gave rise to a widespread presumption in the larger cities that the commissions were, after all, too friendly to the utilities. The utilities were very aggressive in their demands both on the commissions and before the courts, and succeeded frequently in forcing the commissions to revise local franchise rates upward, thus taking away from the cities their bargaining power in their negotiations with the utilities.

The press of business became so great that the commissions were forced more and more to sit as judicial bodies, and to content themselves with a consideration of the evidence introduced before the hearing. Municipal officials began to agree with the opinion expressed by the California executive who writes: "This naturally places the complaining citizen at a great disadvantage, as it is extremely difficult to get the real facts from a large corporation with its expert bookkeepers acting under the advice of skilled attorneys."

The feeling that the better organization of the utilities enables them to present their cases before the Commission more adequately than the cities, acting as individuals can, "has brought about a movement among Ohio cities to co-operate,

particularly in the matter of Bell Telephone rates, to the end that the cities might to some extent equalize the natural advantage the Bell Company has in this regard." But this move toward co-operation was very exceptional, and the general reaction was one of complaint against the commissions. The failure of the legislatures to provide the commissions with adequate investigation staffs handicapped them in arriving at a first-hand knowledge of the facts. The principles upon which the commissions granted rate increases were not unattended by criticisms by utility experts, who argued that unusual opportunities for "squeezing the water out of traction valuations" were inadequately utilized.

The commissions were handicapped in the public mind by apparently having reversed their former policy of reducing rates, since, as one observer records, "in the early days of the Commissions they were able to make sweeping changes due to previous inertia, whereas nowadays the bold strokes have been made, and the Commissions must necessarily go slowly, and in many cases, increase rates."

Attack of City Officials and Labor Groups.—While these and other contentions were advanced to account for the apparent change in the attitude of the commissions and to lend some logical sanction to the criticisms levelled against the commissions, it is worth noting some of the personal factors which inspired the effort to direct the wrath of the public against them. The mayors of various cities felt called upon to join with the legal members of their administrations in absolving themselves from the odium of having increased rates by emphasizing the responsibility of the commissions. The labor group was harder hit than any class in the community by the street railway increases, in particular, and the leaders of this group were not reluctant to intimate that insidious influences were at work on the commissions. Political aspirants found

it possible to crystallize the general discontent around the demand for a 5-cent fare and various proposals for the abolition or substantial modification of the commissions. In response to the insinuations hurled by the city officials, labor groups and various party men, the public utility companies frequently rallied to the defense of the commissions before the public. This served to strengthen the worst suspicions of the labor group and to alienate many citizens of progressive principles who feared domination by the "utilities."

In some instances, moreover, the personnel of the commissions and the methods of the corporations were not free from suspicion. The flat statement has been made in communications from a western state which has waged a spectacular fight over its commission that the companies have been suspected of corruption, "and it can be proved in some instances." In a political campaign it is, unfortunately, not so important what the truth is as what it is supposed to be.

Within the last year or so there seems to have appeared a reaction in favor of the commissions. This has been due, among other factors, to the circumstance that the commission is in a better position to make itself popular by granting rate reductions in some instances. A California official makes a general observation when he says that "with the recent reduction in the costs of fuel, oil and of labor, the commission has made decreases in water, power and gas rates, and I believe the consuming public is better satisfied." In Wisconsin the abatement of the attack on the Commission is attributed not only to the support of the La Follette Progressives, who are traditionally pro-commission, but to the reduced rates which it has been able to grant. With the general decline in popular discussion due to less frequent provocation, there will be more leisure for the critical solution of the problems involved, but the possible recession of the tide of unrest may also be counted

upon to retard action looking toward the actual adoption of any proposed adjustments.

Attitude of Large Communities.—The experience with commission rate advances stirred the self-consciousness of many of the larger cities, not simply because the labor groups are strongly represented there, but also on account of the general sentiment for home rule which has been a steadily growing aspiration of American municipalities for a generation. As soon as the cities found themselves stripped of control over the commissions, they began to consider ways and means of re-asserting themselves, and of securing a more certain legal ascendancy in purely local matters. In the state of New York, for example, the defeat of Governor Miller may be regarded in part as a protest against infringement on the right of local self-direction, the up-state cities having joined with New York City on the issue, Governor-elect Smith interpreted his election to mean: (1) that New York City wants home rule and the abolition of the Transit Commission (a state regulatory body over the city); (2) that the up-state cities want to have home rule, to see the state commission stripped of all power to raise car fares, telephone tolls, and rates for gas and electricity, and to have the power of negotiation left with the local communities. Since 1913, when it lost control over local rates, Chicago has actively labored for home rule. One utility expert believes that substantial sentiment of this nature exists in nearly every American city of 50,000 inhabitants and over. In the course of this investigation it has cropped out conspicuously in all of the urban industrial states of the nation.

The absence of opposition to the Commission on home rule grounds in some of the Eastern states has been laid to respect for the policy of regulation based on slowly evolved experience, to the general confidence in the personnel of the Commissions, the moderate policy of the regulatory bodies, the political

strength of the investing element, and the enlightened personnel policies of some of the larger utility companies.

Attitude of Small Communities.—While the typical attitude of the large cities has been that of opposition to the commissions, the smaller municipalities and the rural areas have generally tended to support the commissions. The attitude of Tennessee has been shown in the first part of the report, and reference has been made to the agitation by the small municipalities for the creation of a commission in Texas. The smaller communities and the rural districts find themselves severely handicapped when they attempt to cope with such pervasive utilities as telephone companies and interurban lines, and a powerful central body is looked to for protection.

This attitude among the smaller communities is, however, by no means universal. When the local utilties are owned and managed by persons who are known and respected, or when the telephone exchanges are neighborhood exchanges, the local officials are inclined to regard the proceedings before the central commission as unduly prolonged and expensive, for they are confident that a satisfactory adjustment can be secured at home. This has appeared in parts of Iowa, Vermont, Pennsylvania, and other states during this survey. With the growth of state-wide telephone monopolies and with the expansion of high-tension lines, it seems inevitable that the tendency of the smaller communities to favor state regulation will endure.

Industrial Group Alignments.—Perhaps it is not surprising to find that the public utility companies and the conservatively minded business men have become inclined to support the state commissions. In Indiana, where the commission has been under bitter attack, the Indiana Public Utilities Association sent personal appeals to the 50,000 owners of public utility stock in Indiana, urging the support of the Commission on the

ground that it had stabilized returns, prevented "blue sky" enterprises, cheapened the cost of supervision; and that it was better equipped than a city council to arrive at a proper valuation. A poll among the members of the Indiana Chamber of Commerce, the Indiana Manufacturers' Association, and the Indiana Bankers' Association, resulted in an overwhelming vote for state regulation of utilities. In California the utilities companies opposed the recent referendum measure looking toward public development of water power on the plea that state regulation of privately owned utilities had been successful. The Civic and Commercial Association of Denver vigorously endorsed the proposal to extend the powers of the Commission, claiming that "the present state of the law will eventually compel the public utilities to re-enter the field of local politics, from which they have been earnestly struggling to remove themselves."

The Utilities Associations are, in general, inclined to favor state-wide regulation on the score that the business is monopolistic by its very nature and must regard a certain amount of government interference as inevitable. The utilities which are inter-city in their scope of operations are frequently the butt of local prejudice merely because of their size, and they have come to have more confidence in state than in local officials to give them a square deal. It might, therefore, be expected that the element in the utility business which favors state-wide regulation is the large owners, the "big fellows." Among the associations whose secretaries of public information favor regulation are the National Electric Light Association, the American Electric Railway Association and the American Gas Association, which association in 1921 published a booklet giving the opinions about regulation of 35 governors of states which were for the most part favorable. The American Telegraph and Telephone Company reaffirmed its approval of state regulation in the 1921 report to its stockholders.

Proposed Solutions.—Although in many states the same underlying situation has been present, the particular issues involved have displayed marked differences which can only be accounted for by taking account of such independent variables as the policy of the commissions, the reputability of the leadership which has been listed for and against the commissions, the strength of the tradition of state regulation, the respect for the personnel of the state body, and the coincidence, or lack of coincidence, between crises and the flood tide of unrest. An interesting fact about the whole situation has been that the sound and fury has not resulted in the abolition of the principle of state regulation in any state, that the principle of state regulation has not been subject to widespread attack in spite of home rule agitation, and that proposals for coping with the utility problem have been relatively unoriginal in content and few in number.

Considerable sentiment exists in the state of Washington for making the appointive commission elective. In Oregon the tendency is to urge that the elective Commission be made appointive. In 1922 the Democratic Party in California favored an elective Commission.

The new governor of Kansas favors a Commission of one man " to stand between the people and the roads," and the same proposal has been made in Arizona.

Professor F. F. Blachly, of the University of Oklahoma, believes the situation is anomalous which forces a Commission to act as a judicial body and to refute evidence presented by the corporations with evidence the commissioners themselves have gathered, and he suggests "dividing the functions of the commissions between two different bureaus or commissions. One should act as an investigating, prosecuting, and public defending body, while the other should act merely in a judicial capacity." The city attorneys in Indiana and certain other

states have proposed in discussion some arrangement for a "public defender," and for adequate investigation staffs.

The Inman investigating committee of the California Senate regretted that the Commission and the people are not in touch, and urged that the Commission must be brought to the people "by having a representative of the Commission in each community . . . to whom the citizen could take his complaint and with the knowledge that he would receive prompt and effective results."

Tendency to Home Rule for Larger Cities.—Perhaps the most significant feature in the evolving situation is the development of a compromise between centralized state control and home rule for the larger cities.

First, there has been, in some states, a tendency to leave the regulation of those utilities which operate from community to community to the Commission. In Nebraska the Railway Commission is vested with control over street railways and telephone companies, and the Mayor of Omaha speaks for a body of opinion in the state when he writes: "With regard to telephone companies, whose properties and activities radiate in a large section and beyond city limits, thus making jurisdiction over its affairs not a matter for city government, I believe the state commission is the body best equipped to deal with the situation," though with respect to other utilities, except steam railroads, he favors home rule. In Minnesota the telephones were put under state-wide control in 1915, and there does not seem to be much objection to the change, since the state is divided between two large companies. In 1921, however, the regulation of street railways was placed under the jurisdiction of the state, and this has aroused serious protests in the larger cities, and in the recent elections, several candidates for the legislature were elected who promised to work for the restoration of local control over them.

Second, the Commissions are being retained for the benefit of communities of less than 50,000. The measure which is fostered by the Texas League of Municipalities would create a committee to deal with interurban utilities, and it provides that cities of less than 50,000 may have the right of appeal at their option to the commission for the settlement of a controversy with any utility, thus saving local expense. The secretary of the Illinois Municipal League states that he is "not sure that the members of the Illinois Municipal League would go on record in favor of the abolition of the Commerce Commission. I am inclined to think that they would favor its continuance as a body which the municipalities might utilize for regulatory purposes or not. A number of cities would undoubtedly continue to employ the services of the Commission rather than to undertake the task of regulation."

Third, the cities over 50,000 do not want the Commissions to intervene in their affairs, excepting, possibly, in situations where the commissions have worked especially well. A public utility expert who is in touch with the situation throughout the United States believes that "commissions are quite unpopular in most of the cities over 100,000 inhabitants, and perhaps even those above 50,000 that I know anything about; . . . however, there are a few sections, like Massachusetts, where the commissions have given a fair degree of satisfaction even in the larger cities."

There are also, of course, thoughtful observers who are inclined to believe that the only way in which cities will ever secure effective control of their public utilities will be through government ownership.

Public Attitude Critical.—The most general conclusion that can be drawn from this study is that there is widespread discontent with the practical workings of public service commissions and that this is due, in part, to the special difficulties

encountered in dealing with the high prices of the war and post-war period; in part, to the demand of the larger cities, that they be permitted to regulate their own utilities; in part to a feeling that utility commissions have not always been aggressive protectors of the public interest, for a variety of reasons arising either from personnel or procedure: and finally to preference for public ownership as against public regulation. It is not possible to appraise the actual popular strength of the alternatives that have been developed: namely, abolition, reinvigoration, local home rule, and public ownership. It must be said, finally that, on the whole, the public attitude toward utility commissions has been critical rather than constructive, reflecting a feeling of uneasiness and distrust rather than a vigorous advocacy of an alternative policy.

CHAPTER XVI

NATION-WIDE ORGANIZATION OF THE UTILITY INDUSTRIES

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Organized Co-operation Among Public Utilities.—Any discussion of public utility regulation would be incomplete which did not refer to the influence exerted by the close co-operation which has been established on a national scale, first of all, within the several classes of utilities, such as steam railroads, electric, gas, etc., and then as between these several groups. Such organization and co-operation has become almost inherent in the situation. The regulatory system itself is one of the main forces driving all utilities into one integrated system for mutual advancement and protection.

Regulation still lies in the field of politics—using that word in its broadest and best sense—rather than in the domain of science. Decisions are made, and unfortunately frequently remade, on the basis of opinion rather than of fact. Furthermore, very few decisions can be demonstrated by mathematics or even by economics. In such a situation the importance of the increasingly close articulation on a national scale of the consolidated private interests in these properties is obvious. Public opinion, as expressed through the newspapers, through public officials—including public service commissioners—and even through the courts, is bound to be deeply influenced by principles and practices which through organization are made uniform in every state, county and municipality throughout the length and breadth of the land.

Nation-Wide Organizations.—In the first place, each type of utility industry has its national organization especially designed to act for it in all matters affected by regulation. Typical of these are the "President's Conference" for the steam railroads, the American Gas Association, the American Street Railway Association, and surpassing all others in the perfection of its organization and the range of its power, the National Electric Light Association. The condition under which the American Telephone and Telegraph Company holds title to the telephone industry makes further integration there hardly necessary.

The 12,087 individual memberships in the N. E. L. A. are largely nominal, since such members have no vote and their remaining in the Association is dependent under the Constitution upon their retaining the approval of an employer who is a company-member. The 1,280 company-members have the voting power and therefore control the organization. Because of inter-company affiliations and for other reasons the voting is confined as a usual thing to less than 100 persons. N. E. L. A. revenues are provided by a percentage levy on the gross revenue of operating companies and by special assessments. The organization engages in extensive advertising campaigns, called "good will advertising," which are primarily intended to pave the way for stock selling campaigns. The N. E. L. A. is opposed to public ownership, and from time to time issues literature decrying it.

Each of these industries is likely to have regional, sectional and state organizations—the latter specially watchful as to the passage of what might be considered inimical legislation.

Joint Action of Organizations.—In recent years more and more frequently these organizations, pertaining to particular utility industries, have acted together on national matters of common interest. For instance, in the winter of 1922-23,

during the aftermath of the coal strike, a joint committee published under date January 31, 1923:

> An Outline of the Presentation to be made to the U. S. Coal Commission by the Joint Fuel Committee on behalf of the American Gas Association, the American Electric Railway Assn. and the N. E. L. A.

Information about a joint organization of the utilities of Pennsylvania is given in an issue of *The U. G. I. Circle*—the house organ of the United Gas Improvement Company:

> With, as its object, the assembling and dissemination of reliable information relating to the public utilities in Pennsylvania, a committee composed of executives of gas, electric, telephone, street railway and water companies was formed in May. The Committee is known as The Pennsylvania Public Service Information Committee and has its headquarters, in the City Centre Building, Philadelphia. . . . The primary purpose of the Committee is an educational one. It will operate a bureau to supply to the public through the press and otherwise, accurate information concerning the public utilities of Pennsylvania with a view to crystallizing sound public opinion and creating in the public mind a feeling which will make for clear understanding of public utilities. A news bulletin will be issued periodically and broadcasted to the press and public utility executives throughout the State, and later, in all probability, a speakers' bureau will be organized.

Similar committees are now operating in thirty-two states.

Reports of Decisions of Commissions and Court Rulings.—"Public Utilities Reports Annotated," a periodical published by Public Utility Reports, Inc., in which the "decisions of Public Service Commissions and court rulings thereon are head noted and printed in full or abstracted, and including a bi-weekly editorial review," is a most influential agency for promoting the private utility interest in this field. It is supported by subscriptions to its publications and by underwritings se-

cured from the private utility interests and supervised by a group of distinguished lawyers closely identified with the same interests.

This situation with regard to the reporting of utility cases affords a good illustration of both the newness and crudeness of regulation. That one side to important and continuing litigation ought not to have charge of the reporting is shown by the record to have been quite obvious to the public service commission group when it was first proposed, but after eight or nine years of its continuance unquestioned acquiescence seems still to prevail. Competent administration of utility regulation and public confidence in its competence and disinterestedness depend on adequate reports of its decisions, and the duty of furnishing such reports cannot be abdicated by public service commissions.

Anonymous Character of Publication.—On the other hand, the supporters of "Public Utilities Reports Annotated," as well as its managing committee of lawyers and editors, would be on firmer ground if the facts regarding the relationship of this enterprize to the private interests were to be stated on the first page of the text of each issue or be proclaimed on the cover. Again, it would also be better if the names of the officers of "Public Utilities Reports Annotated" were given equal publicity on its letterhead with "Endorsed by the National Association of the Public Utility Industry and by the National Association of Railway and Utilities Commissioners." Both the American Telegraph and Telephone Company and the National Electric Light Association issue digests of utility decisions over their respective names. Anyone reads such digests in full knowledge that consciously or unconsciously decisions may be quoted and interpretations made in accordance with corporate policy. Only twice in eight years have the publishing auspices of "Public Utilties Reports An-

notated" been referred to in any way—once, in 1915, when the support of the National Association was being sought and a brief note in 1920 calling attention to the addition of "Inc." to the title. The rank and file of those who consult these publications naturally assume that they are issued under the same detached, disinterested, impersonal basis as are the several digests of laws and court decisions which are found in lawyers' libraries.

The "Question Sheet."—Another activity of Public Utilities Reports Inc. is the publication of the bi-weekly "Question Sheet," in which ten questions concerning utility problems are asked and answered. Typical of these are the following:

Question No. 282. Assume that a utility property has been valued in 1915. Seven years later it is necessary to establish a new rate base. How may this be done without a revaluation and due consideration be given in change in value of the plant due to decrease in the value of the dollar?

Answer. In a case before the New Jersey Commission the value of the plant for the period 1922 to 1926 was determined by the use of index numbers of the wholesale prices in the United States as developed by the United States Department of Labor, Bureau of Labor Statistics. By a comparison of index figures of former years, a price trend was obtained, and the index number for 1926 estimated. Then the average index number for the period 1922 to 1926 was arrived at, the index number for 1915, the date of the valuation, equaling 100. The average index number for 1922 to 1926 was found to be 130. The value new of the property in use under the 1915 valuation was $666,306. Translated into the 1922-6 average, this equaled $866,198. Additions since 1915 were treated in the same way. The total cost of the additions was found to be $192,841. Translated into the 1922-6 average, the value was determined to be $153,765. For a full discussion of this method with tabulated figures of result, see Re Coast Gas Co. (N. J.) P. U. R. 1923 A, 349,357.

Note: It will be observed that this method does not take into consideration enhancement in the value of utility property

which may be due to causes other than the changing value of the dollar.

Question No. 340. Why are the interests of the consuming public, of investors in utility enterprises, and of the state not in conflict?

Answer. The reason has been pointed out by the Idaho Commission. The Commission believes that whatever is conducive to the real interest of one is equally so for the real interest of the other, etc.

Question No. 250. A public service statute forbids rates which are "unjust or unreasonable or inadequate or are unjustly discriminatory, or unduly unreasonably preferential." Does this mean that the same rates must be charged to all consumers?

Answer. No. Different classifications of consumers are everywhere permitted. It is said in Pennsylvania that such a statute permits such classifications of consumers as do not offend against the provisions of the statute; that a utility company has the right to divide its customers into groups according to the purpose for which the service is furnished or needed, these being subdivided into classes according to the quantity taken, each group and its subdivisions being set forth in a separate schedule and the whole of the schedule forming the tariff filed with the Commission. Duquesne Light Co. *v.* Public Service Commission (Pa.) P. U. R. 1922. 286,290.

The purpose of the "Question Sheet" is manifestly to promote uniform regulatory practice in every part of the country favorable to the utilties. It is to be seriously questioned, however, whether the same concern should combine in itself the function of reporting commission decisions with that of instructing the public as to the proper conduct of the industry.

Publication of Reports by a Disinterested Agency Needed.—Questions as to whether "P. U. R. Annotated" and the other publications of this agency are, or are not, edited fairly are really beside the mark. Recognition of the fact that it would be possible to use the publication for or against the public interest is shown, on the one hand, by the frequent

citation of the fact that a committee of the National Association of Railway Commissioners is constantly on the watch to see that it does not happen, and on the other, by the fact that hearings have been granted by the publishers to representatives of utility companies who felt that the reports were edited unfairly with respect to the property interests involved. The function of editing these reports is one which, in the very nature of things, cannot be properly performed except by some disinterested agency. There is a seasoned maxim in administration and in morals, as well as in law, that one is not competent to be a judge in his own case.

Trade organizations are essential to the proper conduct of business. Therefore, such agencies as are here referred to are altogether essential to the proper functioning of the utility industries. Their danger lies rather in the size of the interests which they represent and in the quasi-secrecy in which they operate, because there are no public agencies to offset them, and because their existence and methods of operation are not comprehended and controlled by law.

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